AMERICAN GAS ASSOCIATION MONTHLY

Low-Cost Housing Parley Endorses Gas for Heating and Refrigerating

F. R. WRIGHT

Reminiscences Of a Youthful Old Timer

JOHN F. WEEDON

Mexican Ores Smelted with American Gas

Texas Town Leads Winners in Ice Cube Contest

Radio Cooking School In Dallas Proves Success

Determination of the Effect of Direct Gas Firing on Porcelain Glazes

ARTHUR P. WATTS

January, 1934

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AMERICAN GAS ASSOCIATION

420 Lexington Avenue **New York, N. Y.**

AMERICAN GAS ASSOCIATION MONTHLY

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CONTENTS

	PAGE
Test Proves Superiority of the Gas Range	2
The Black Art J. B. NEALEY	3
Low-Cost Housing Parley Endorses Gas for Heating and Refrigeration F. R. WRIGHT	5
British Find Entry Into U. S. "Thrilling"	7
Determination of the Effect of Direct Gas Firing on Porcelain Glazes ARTHUR P. WATTS	8
Reminiscences of a Youthful Old-Timer JOHN F. WEEDON	11
Mexican Ores Smelted with American Gas	14
Henry Obermeyer's Book Inspires Advertising Campaign	17
Gas Revenues Decline 5.6 Per Cent in 1933	18
Convention Calendar	18
Five Sets of Requirements Accepted by A.G.A. Approval Requirements Committee	20
Heroes, Unhonored and Unsung T. H. MILLION	22
Ennis, Texas, Leads Winners in Ice Cube Contest	23
Radio Cooking School in Dallas Proves Success	24
Find Gas Exhibits Pay Dividends	26
Gas Exhibit at Hotel Show Attracts Thousands of Visitors	27
Technical Section Committees Organize in Cleveland	28
The Development and Operation of Combination Compressor Trucks E. H. EACKER	30
Monthly Summary of Gas Company Statistics	32
Gas Appliance and Equipment Developments	34
Associations Affiliated with A.G.A.	35
Personnel Service	36

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Test Proves Superiority of the Gas Range

THE Detroit-Michigan Stove Company has made public information regarding a cooking test recently held in "The Old London" restaurant on Forty-second Street, New York City, using a 36-inch Edison electric range for commercial work and a No. 45-28 CX Garland gas range. This test was made at the request of the proprietor of the restaurant, and was attended not only by gas men but by electric men as well.

This test was so conclusive in showing the superiority of the gas range that the restaurant has replaced its electric ranges, not only in the Old London but in several branches that it controls in New York, with gas burning appliances.

One of the outstanding claims that has been made by the electric people in promoting the sale of their ranges is that there is less shrinkage of meats and roasts cooked in an electric heated oven versus a gas oven. This has been one of their strongest talking points in interviewing not only domestic customers but particularly hotels, restaurants and public institutions. The tests made in the New York restaurant, along with others that have been made in the past have shown the gas range superior in this as well as other tests.

Following is the result of the test that was made:

	Beef		Pork Loin	
	Gas	Electricity	Gas	Electricity
Time in Oven.....	2 hr. 25 min.	2 hr. 25 min.	1 hr. 50 min.	1 hr. 35 min.
Temperature of Oven..	370°-390°	370°-390°	370°-390°	370°-390°
Wt. of Meat and Pan..	4834 gm.	4530 gm.	2568 gm.	2781 gm.
Wt. of Pan Only.....	498 gm.	488 gm.	475 gm.	488 gm.
Net Wt. of Meat.....	4336 gm.	4042 gm.	2083 gm.	2280 gm.
Wt. of Meat and Pan after Roasting.....	4250 gm.	3792 gm.	2174 gm.	2242 gm.
Net Loss in Wt.....	484 gm.	738 gm.	394 gm.	539 gm.
% Shrinkage.....	13.5%	18.2%	18.9%	23.6%

AMERICAN GAS ASSOCIATION MONTHLY

Allyn B. Tunis, Editor

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The Black Art

By J. B. Nealey

IT might be truthfully said that the Black Art reduced the world's automobile tire bill by several million dollars, and by Black Art we do not mean the dark psychological practices of the ancient witch doctors. The Black Art we refer to is the modern industry of carbon black manufacture. By adding this product to the tread stock of automobile tires, thereby toughening the rubber, the mileage is increased from 5,000 to approximately 15,000 miles. Without carbon black in the ink, newspapers could not be printed as legibly, quickly or cheaply as they now are. Furthermore, carbon black is one product of which the United States enjoys a world monopoly.

Formerly produced by burning oil, carbon black is now almost entirely produced from the incomplete combustion of natural gas. This industry is a migratory one, for it depends upon large and cheap supplies of this fuel. While a new field is being drilled and proven up as to extent of reserves preparatory to piping the gas to more densely populated areas of consumption, large supplies are available at nominal prices.

The carbon black industry was fathered in the Pennsylvania gas fields, but as the gas was gradually absorbed by domestic and more profitable industries, it began migrating along about 1900, to the West Virginia fields. Fifteen years later the gas lines to Pittsburgh, Cleveland and other Pennsylvania and Ohio towns, were extended to the West Virginia fields, so that another migration was in order. This time it took a southerly trend, principally to the Monroe field of Louisiana. This migration has been stimulated by heavy taxation and conservation laws.

It was about this time that the enormous expansion in consumptive demand from the rubber tire industry began and production to meet this came principally from new plants built in the Louisiana and Texas gas fields. Production from Louisiana has held quite steady since 1925 (except for 1930) but today that of Texas is nearly three times as great. In 1930 consumers in St. Louis, New Orleans, Atlanta, and other cities and towns, which are supplied by long lines from the Louisiana fields, took so much gas that the consumption in the carbon black plants shrank very materially. This started a real migration to the Texas fields.

Many Processes

The growth of this industry is reflected in the following figures: Production in 1887 was approximately 1,000,000 lbs.; by 1900 it amounted to six or seven million lbs. and ranged around 20,000,000 lbs. annually by 1915. This was more than doubled in five years (51,000,000 lbs. in 1920) and by 1925 it exceeded 177,000,000 lbs., while in 1930 it totaled close to 380,000,000 lbs. Approximately 266½ billion cu.ft. of gas was burned to obtain 1930's output, and the average recovery was 1.43 lbs. per 1000 cu.ft. burned.

It has been stated that only about 5% of the carbon in the gas is reclaimed in the carbon black plants, but on the other hand, the ordinary electric light bulb realizes as light only 5% of the energy imparted; the average forging furnace utilizes only about 5% of the fuel burned in it, and so on.

Carbon black is made by allowing a gas flame to deposit soot on a metal surface and then scraping the soot off. Many novel devices, by which this is accomplished mechanically have been developed and put into use, but the prevailing method today is what is known as the channel process. The machinery for this is built in units, usually from 110 to 130 ft. in length, and consists of 8 in. channels fastened to a steel frame on 2 in. centers. The frame is mounted on wheels and oscillates back and forth on a track, a motor with cam and link mechanism being supplied for this purpose.

Weather Affects Process

Burning gas jets are so located below on three- to five-inch centers that the channels continuously pass through these and return, stationary blades

scraping off the soot on the return stroke. The soot or carbon black drops into hoppers and the hoppers of each unit feed into a screw conveyor which transfers the black to the packing house. Separation or reduction of grit is accomplished either by air flotation or by fine grinding with high speed knives. So much air is entrained by the material that a single cubic foot weighs only two or three pounds and this air is partially removed by stirring for several hours. The carbon is then packed in bags, holding 12½ lbs., under the feeding pressure of a rotating cut flight spiral and the bags are then reduced in size in presses.

At first blush this would appear to be a very simple mechanical process, but the fact is that both the quality and quantity is directly affected by draft conditions within the building as well as temperature, weather and atmospheric changes. Constant efforts to bring these ever varying conditions under careful control constitute an art of the highest order. While there are 31.32 lbs. of carbon black in every 100 cu.ft. of natural gas only from 1 to 1½ lbs. are obtained through the channel process.

New Principle

More recently there has been developed and put into operation a process for carbon black manufacture on an entirely different principle. Natural gas is employed but it is cracked in a furnace and leaves nitrogen gas as a by-product which will eventually be used in making methanol or methyl alcohol or will be combined with nitrogen to produce ammonia for fertilizer. This process is patented and owned by the Thermatomic Carbon Company and the plant is located near Sterlington, La., in the Monroe gas field.

A part of the hydrogen gas is used, at the present time, as fuel under the steam boilers in the power plant. The gas in the Monroe field is 92% methane, and the gas resulting from the dissociation in the furnaces, and after the carbon black has been extracted, is 85% hydrogen. A thousand cubic feet of this natural gas will produce 2,000 cu.ft. of hydrogen and 10 lbs. of carbon black. This is not a "rabbit from a hat" proposition, for, according to the well-known laws of gases, gas expands 100% or two for one when cracked.

The carbon black thus made is of a different quality and peculiarly adapted for use in some of the seven rubber formulas when greater flexibility is required. In the cracking process considerable water is needed for cooling and this is pumped from a bayou two miles away. Fifteen steam pumps are used, three of which pump a thousand gallons a minute, and these pumps are operated, not with steam, but with gas under pressure from the wells.

The rock pressure of the gas at this point is 750 lbs. and this is reduced at the well mouth to 300 lbs., and it is further reduced at the plant to 115 lbs. When the gas is exhausted from the pumps it is at 15 lbs. pressure and is used at the furnaces at this pressure. Gas used in the furnace direct from the wells is reduced to 15 lbs. pressure also.

65,000 Pounds Daily

The Thermatomic process utilizes a furnace similar to the superheater of a water gas machine and consists of a steel cylindrical shell lined with firebrick and filled with checker brick. Dome shaped it is 14 ft. in diameter, and 25 ft. high. Alternate streams of heating gas and gas to be dissociated are blasted through the furnace, from opposite directions, on five-minute cycles each. First the checkers are heated by blasting air and heating gas up through the furnace and out the stack and at the end of the period this blast is turned off and the stack lid closed. Natural gas is then blasted down through the hot checkers from the top and the dissociated hydrogen gas with half the carbon black in suspension is forced out, through a duct near the bottom, into a vertical cooling chamber with atomized water sprays. The incoming hot hydrogen flashes the water into steam, and the cooled smoke with the carbon in suspension is forced into a dust collector where a separation is made. The collector consists of a vertical frame 12 ft. long and 5 ft. square holding 24 bags, each 9 in. in diameter. The carbon is deposited on the walls of these bags while the gas passes through. A pneumatic pump thumps the frame intermittently which causes the carbon black to fall off into a screw conveyor which takes it to an air flotation and screening process and then to the packing hoppers, and packers of the standard floor mill type. One screw serves the collectors of the entire 8 sets.

The temperature varies from 900 to 1400° C. and the carbon black that is originally deposited on the checkers during the dissociation run (about half) is burned during the heating up period. There are 16 of these furnaces divided into 8 sets, each set consisting of two furnaces with two coolers between and the coolers discharge into a single collector. The capacity of the plant is 65,000 lbs. of carbon black a day.

Each furnace is heated with four gas burners of the Bunsen type, each burner consisting of an 8-in. pipe enclosing a ¾-in. pipe. Air is forced into the larger pipe at 8-in. water pressure and gas into the smaller at half that pressure and they burn in a long flame directed up through the checkers. Each burner has a capacity for 7,000 cu.ft. of gas per hour.

Approximately 77% of the carbon black produced is now utilized in the rubber tire industry, 11% in inks, principally printers' ink, 7% in paints and the rest miscellaneously. Exports amount to roughly 25% while the balance is used in the United States.

Some of the hydrogen gas is burned as fuel under the boilers in the power plant which consists of several steam boilers and steam engine driven generators. The electricity thus produced is used to light the plant, to operate the motors and in various other ways.

E. M. Tharp Elevated by Columbia System

E. M. THARP, vice-president, Columbus Group of gas companies in the Columbia System, has been appointed general manager of the group, which includes the Ohio Fuel Gas Company, Columbus Gas & Fuel Company, Federal Gas & Fuel Company and the Springfield Gas Company, covering 325 Ohio towns. The appointment was announced by C. I. Weaver, president of the group, who will still retain supervisory authority of these and other companies in the Columbia System. Mr. Tharp is recognized as an authority on gas sales promotion.

Low-Cost Housing Parley Endorses Gas for Heating and Refrigeration

By F. R. Wright

A. G. A. Testing Laboratory

THAT part of the Federal Government's Recovery Program dealing with slum clearance and low cost housing is of special interest to the gas industry since gas is the logical fuel for cooking, heating, and refrigeration for consideration in such plans.

It is only logical that the National Conference on Low Cost Housing should be held in Cleveland, since it was here that $12,000,000 was first appropriated for a group or apartment building program of slum clearance, and further, a suburb of Cleveland was the first city to receive a $1,000,000 loan from the Federal Government for the construction of low cost homes. The conference attracted a very large group of building material manufacturers, architects, plumbers, heating engineers, and lighting specialists as well as other interested parties from many states.

The primary purpose of the conference was to determine what building material and domestic equipment manufacturers are doing and can do to provide for economical construction of group and individual low cost housing units. Since the type of heating, cooking, and refrigeration service to be provided is an essential consideration in a project of this kind, considerable time was spent in a discussion of such problems. This brings us to the highlights in the conference which appear to be of interest to the gas fraternity.

Henry Wright, practicing architect, New York City, and consulting architect of the Federal Government, spoke on planning for low cost housing, stating that it is the desire to provide better construction and equipment at lower cost. The saving should not be made by resorting to cheap or shoddy materials and equipment, stated Mr. Wright, but by simplification and substitution of equally satisfactory materials and equipment where available at lower cost. In his opinion plans should include provisions for gas stoves and mechanical refrigerators. In his opinion, gas fuel was to be preferred where local rates were such as to bring the cost within reasonable range of other fuels. In commenting further, Mr. Wright stated that whereas the Federal Government had provided for low interest rates, the National Recovery Act would result in higher maintenance costs. In view of the latter fact, it was felt that houses should be built well so as to last a long time. He pointed out that the initial investment in building and equipment could be more providing the maintenance cost were less. It, therefore, appears that the low maintenance cost of gas cooking, heating, and refrigeration equipment is another reason why gas should be preferred for these services.

Kitchen Layouts Shown

R. L. Davison, director, Pierce Foundation, New York City, stated that his organization had been working for years on ways and means of building better houses for less money. He displayed plans that had been prepared for kitchen layouts, stating that the first plans drawn up had involved the use of a standard Electrolux gas refrigerator, but that through the cooperation of the manufacturer, a 22-inch Electrolux had been built which worked in better with the unit, making it possible to provide for interchanging different pieces of kitchen equipment to suit individual tastes. Mr. Davison stated that where cost of gas is competitive, it is to be recommended, but that the type of fuel used in any instance would naturally depend on local conditions. The advisability of using a continuous or intermittent heating system, according to Mr. Davison, depended upon the type of wall construction employed. It was his opinion that for houses with walls of high heat capacity, continuous heating was preferable, whereas with walls of low heat capacity which could be brought to equilibrium within a relatively short period, intermittent heating might be the most economical.

Mr. Davison expressed the opinion that air-conditioning equipment is too expensive to be considered at present, but felt that year-around air conditioning might be practical within the next year or two for upper-class low-cost housing.

Probably the most interesting paper of the conference, in so far as the gas industry is concerned, was given on the subject of "Heating and Ventilation," by F. H. Valentine, of the firm of Mayer & Valentine, consulting engineers, Cleveland. Mr. Valentine's paper involved a study of heating systems in relation to large scale low cost housing. He pointed out that there were three elements of expense that must be considered in determining the type of heating system to be used —(1) initial cost, including installation; (2) cost of operation, and (3) maintenance cost. The last two he considered as being more important than the first. In his opinion, whatever system was employed should be capable of withstanding a reasonable amount of abuse and mistreatment. Since leakage is a major item in the heating of buildings, the employment of insulating materials, water proofing, and weather stripping was considered as being highly important.

Three Methods

Three methods of heating multiple low-cost housing units were discussed by Mr. Valentine, namely:

1. Steam from District Heating Company
   a. Purchased on meter rate basis (Preferable)
   b. Flat rate basis (Wasteful)
2. Central Group Heating System
   a. Steam
      (1) One-Pipe System
      (2) Two-Pipe System
   b. Hot Water
3. Individual Heating Plants for Each Apartment in the Building
   a. Steam
   b. Hot Water
   c. Warm Air
      (1) Gravity Warm Air Furnaces
      (2) Forced Air Systems
   d. Individual Room Heaters

In discussing the fuels to be used Mr. Valentine explained that coal was not applicable for large scale heating except possibly for individual units because of the lack of storage space, ash disposal, and because of the smoke and dirt involved. Oil was also considered to be out of the question because of lack of storage space. Gas, both artificial and natural, was regarded as preferable because no storage space is required and because it is clean and smokeless. The subsequent discussion was, therefore, concerned with individual heating plants designed for gas, including gas, steam and hot water boilers, gas warm air furnaces, as well as various types of individual room heaters such as gas radiant heaters, gas-steam radiators, gas logs, reflector heaters, and circulators.

As gas is not always the least expensive fuel the type of heating plant installed should be highly efficient, according to Mr. Valentine.

Summary of Costs

In his discussion of vented and unvented room heaters Mr. Valentine mentioned the fact that the products of complete combustion from a gas appliance of any kind are harmless since when gas is completely burned carbon dioxide and water vapor are formed, both of which are harmless. It was his recommendation, however, that all gas appliances be vented to avoid condensation of moisture on walls, windows, etc.

The summary table of plant and fuel costs presented by Mr. Valentine is given here since it represents an unusual method of comparison of various types of heating services for low cost housing units:

SUMMARY OF PLANT AND FUEL COST

(Cost of Gas 65¢ per 1,000 Cu.Ft.)

	Building Heating Plants			*Heat and Fuel Costs*		
Type of Plant Service	*Building Heating System*	*Cost/Cu.Ft. of Contents*	*Cost Per Room*	*Total Season Cost*	*Cost/Cu.Ft. of Contents*	*Cost Per Room*
Outside Plant Service	$210.00	0.038¢	$35.00	$ 70.00	0.0125¢	$11.50
Private Plant Service	210.00	0.038	35.00	52.00	0.009	8.30
Single-Pipe Steam	264.00	0.047	44.00	94.00	0.017	15.60
Two-Pipe Vapor Steam	315.00	0.057	52.00	90.00	0.016	14.75
Hot Water System	350.00	0.063	58.00	60.00	0.011	10.00
Gravity Warm Air System	180.00	0.033	30.00	122.00	0.022	20.30
Gravity Pipeless Furnace System	140.00	0.025	23.00	122.00	0.022	20.30
Fan Pipeless Furnace System	360.00	0.065	60.00	90.00	0.016	14.75
Gas-Steam Radiators	340.00	0.061	56.00	76.00	0.013	12.00
Gas Cabinet Convection Heaters	300.00	0.054	50.00	72.00	0.013	12.00

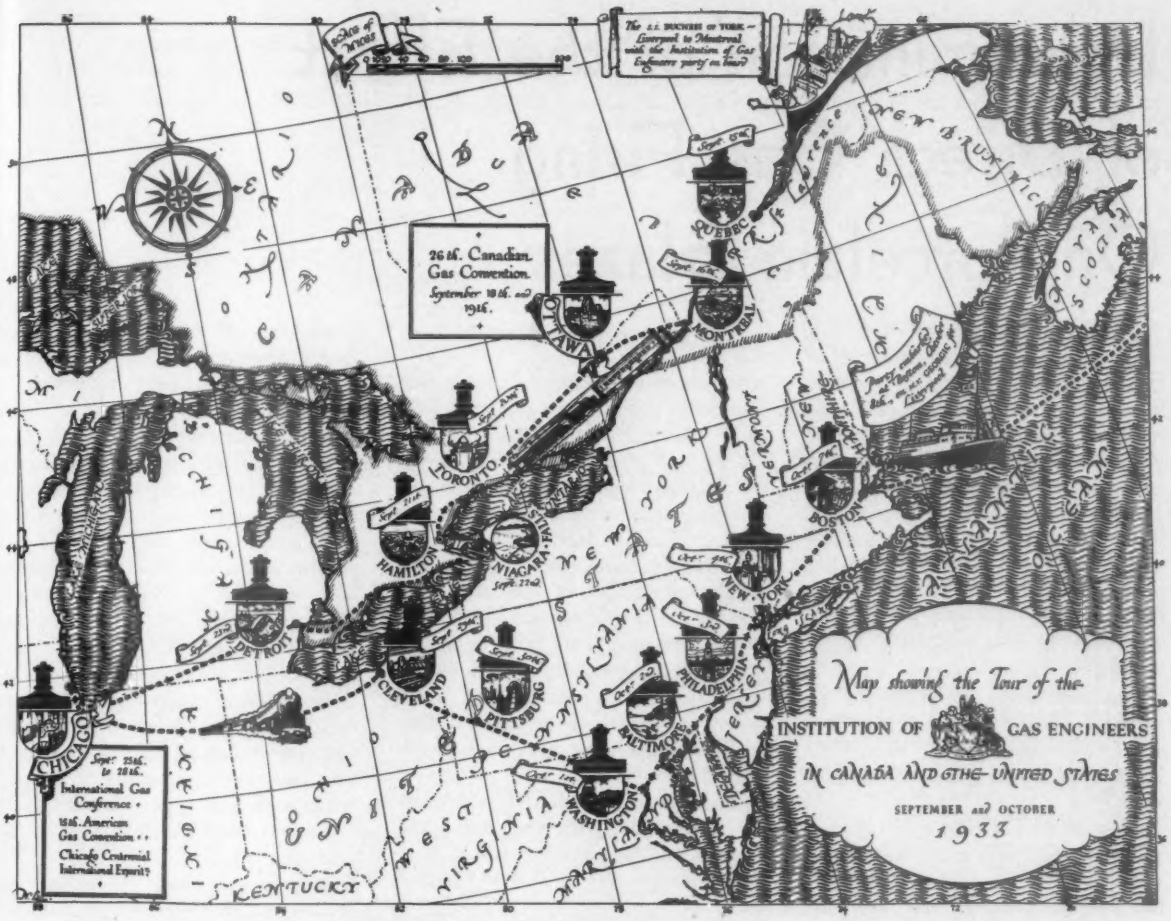
It was quite evident from the various papers presented at the National Conference on Low Cost Housing that not only are gas refrigerators favorably regarded because of their low operating and maintenance costs, but gas seemed also the most desirable fuel for cooking and heating purposes. Gas is sometimes considered as being too expensive for house heating purposes but a thorough analysis of the subject brought out at the conference seemed to reveal the following advantages of gas for heating in low cost housing projects:

1. No fuel storage space required.
2. No space for ash storage necessary.
3. No expense for firing since gas appliances are automatically controlled.
4. No expense for ash removal since there are no ashes with gas.
5. High efficiency of units.
6. Susceptible to automatic temperature control with room thermostat, and time clock where desired temperature for different periods of day and night automatically maintained. Overheating with other fuels often wasteful since windows and doors often opened when overheating occurs.
7. Lower maintenance cost of units since A. G. A. approved gas appliances required to comply with national standards for strength and durability.
8. No dust, dirt, nor ashes connected with use of gas; consequently, repapering, cleaning, and redecorating costs are less.
9. There is no smoke where gas is used. Smoke not only causes millions of dollars worth of property damage in various cities each year, but is also extremely detrimental to health. This is avoided where gas is used.

While most of those discussing the Federal Government's proposed housing projects were apparently sold on the advantages of gas for heating, cooking, and refrigeration, they must be kept sold and in addition Federal Housing Authorities and local housing commissions in the various municipalities must be convinced of the advantages of gas over other mediums of heat if the gas industry is to secure the business it rightly deserves which may develop from this phase of the nation's present recovery program.

Kansas City Chamber Honors Major Strickler

MAJOR T. J. STRICKLER, vice-president and general manager of the Kansas City Gas Company, Kansas City, Mo., and a member of the American Gas Association Advisory Council, has been elected vice-president of the Kansas City Chamber of Commerce, in charge of civic activities.



Map accompanying description of visit of Institution of Gas Engineers to Canada and United States

British Find Entry Into U. S. "Thrilling"

FRED J. WEST, C.B.E., chairman and managing director of West's Gas Improvement Company, Limited, Manchester, England, who accompanied other members of the Institution of Gas Engineers when they visited the United States to participate in the International Gas Conference and annual convention of the American Gas Association, at Chicago, last September, was overwhelmed at the reception tendered the visitors upon their entry into this country.

Describing the visit to America in *West's Gas*, the house journal of West's Social Society, Mr. West, among other things, wrote that the entry of the British delegation into the United States was a "thriller." He said:

"We arrived about 8 p.m., just after passing the Canadian frontier at Windsor. We were received by the Vice-President and officials of the Detroit Gas Company, and the British and French Consuls. We were immediately engaged in a 'giddy' and 'hectic' two hours sightseeing, which had about it a real American 'hustle.' We were accommodated in three excellent motor-buses and a few private cars, and our escort comprised three uniformed police, six-shooters in their belts, and mounted on high-powered motor-bikes. They certainly provided the 'high spot' of entertainment. We were literally 'rushed' through the city, at a speed, I am sure, contrary

(Continued on page 33)

Determination of the Effect of Direct Gas Firing On Porcelain Glazes

By Arthur P. Watts*

THE term "porcelain," as used in this country, embraces a variety of ceramic products. Broadly speaking, a porcelain is a glazed ceramic ware maturing at a comparatively high temperature and developing a vitreous structure after firing. Electrical porcelain products, such as large and small insulators, switch bases, socket fixtures, and specialty wares such as soap dishes, towel bar rods and holders, faucet handles, etc., are typical porcelain products. The term "porcelain" is also applied to certain pottery wares in whose manufacture the glazes are matured at high temperatures. They differ from "lead glazes" in that the latter are of higher gloss and are more volatile.

Most of the electrical porcelain, and a considerable portion of the sanitary ware made in this country, is a one-fire product,—that is, the body and glaze are matured together in one firing operation. The most common firing point for products of this type is somewhere between 2300° F. and 2400° F., varying somewhat with the individual manufacturer. The glazes applied to wares of this type are all of a generally similar nature and in this article no distinction will be made between glazes applied to electrical porcelain and glazes applied to specialty wares of the kind mentioned.

The distinguishing characteristics of porcelain glazes are the absence of lead compounds and boric acid in their constituents and the relatively high maturing point of this type of glaze. Most wall tile, tableware, and pottery glazes mature at a temperature approximately 300° F. below that of porcelain glazes, due to the fact that the former contain more fluxing agents and less of the refractory constituents present in porcelain glazes. The lower-fired glazes and particularly the so-called lead glazes also are commonly of the fritted type, that is, the alkaline constituents such as the sodium, potassium, calcium, and all or part of the lead is mixed with part of the acidic constituents of the glaze and melted to form a frit or glass. The frit has two purposes: (1) to render the alkaline constituents insoluble in water, and (2) to premelt a part of the glaze. The frit therefore exerts a fluxing action upon the other constituents of the batch.

The formula for the frit and batch of a typical wall tile porcelain glaze maturing at cone 01 or 2030° F. is as follows:

	Frit	*Batch*
Frit		49.5%
Feldspar	15.3%	
China clay	4.8%	13.1%
Whiting	1.8%	12.8%
Flint	20.8%	21.0%
White lead	23.6%	3.6%
Sodium carbonate	0.5%	
Borax	33.2%	

The formula for a typical porcelain glaze maturing at cone 10 (2300° F.) is as follows:

Feldspar	42.1%
China clay	13.1%
Whiting	17.6%
Flint	27.2%

Comparing these two formulas, a very considerable difference in the constitution and the amount of fluxing agents present will be noted. For the above reasons, the technique of firing porcelain glazes is quite different from that employed in the firing of the more fusible and volatile glazes. It should be kept in mind that statements made in this article referring to *porcelain glazes* are not necessarily applicable to the lower-fired glazes, particularly not to the volatile lead glazes such as are used in the manufacture of high grade tableware and lamp shades.

The advantages of the direct-firing of ceramic wares, due to the elimination of saggers and muffles which waste considerable fuel and are expensive to manufacture and maintain, were outlined in a previous article ("Determination of the Effects of Direct-Firing on Wall Tile Glazes").† The absence of smoke, soot and injurious gases of combustion in the furnace atmosphere when either manufactured or natural gas is used as a fuel, made the direct-firing of ceramic wares with gas appear feasible, and it was to determine the facts in the case that the second phase of the Association's research program was undertaken. This second phase was concerned with the direct-firing of ceramic wares with gas on a small scale, in the laboratories of the Department of Ceramics at Rutgers University. This article will be devoted to a discussion of the results obtained with porcelain glazes.

The apparatus used in these tests was the same as that described in the article on Wall Tile Glazes.

Glazes Tested

Some of the porcelain glazes used in this investigation were secured from near-by plants and others were prepared in the laboratory. In the former case, the specimens were glazed at the plants from which secured and then brought to the laboratory for direct-firing. Standard pieces of average quality were also secured in order to compare the plant-fired specimens with those direct-fired at the Ceramics Department. In all, fifty-eight porcelain glazes were tested, forty-one of

* Former Research Fellow, A. G. A. Industrial Research Project No. 11, Department of Ceramics, Rutgers University, New Brunswick, N. J.

† Am. Gas Asso. Monthly, Vol. 15, No. 4, April, 1933; pp. 131-133; A. P. Watts.

TABLE I

PORCELAIN GLAZES USED IN THE DIRECT-FIRING TESTS

Glaze No.	*Source*	*Color*	*Type*	*Approx. Temp. of Maturity*	*Kind of Ware Applied to*	*Quality of Direct-Fired Specimens*
1	Com.	Black	1	2300° F.	E. P.	Excellent
2	Com.	Black	1	2350–2400° F.	E. P.	Excellent
3	Com.	Brown	1	2350–2400° F.	E. P.	Excellent
4	Com.	Blue	1	2350–2400° F.	E. P.	Excellent
5	Com.	Clear transparent	1	2350–2400° F.	E. P.	Excellent
6	Com.	White	1	2350–2400° F.	E. P.	Excellent
7	Com.	Brown	1	2400° F.	E. P.	Excellent
8	Com.	White	1	2400° F.	S. P.	Excellent
9	Com.	Black	1	2300–2350° F.	S. P.	Excellent
10	Com.	Green	1	2300–2350° F.	S. P.	Excellent
11	Com.	Blue-green	1	2300–2350° F.	S. P.	Excellent
12	Com.	Yellow	1	2300–2350° F.	S. P.	Excellent
13	Com.	Cream	1	2300–2350° F.	S. P.	Excellent
14	Com.	Salmon	1	2300–2350° F.	S. P.	Excellent; slightly fainter tint than plant specimen.
15	Com.	Blue	1	2300–2350° F.	S. P.	Excellent
16	Com.	Lavender	1	2300–2350° F.	S. P.	Excellent; fainter tint than plant specimen.
17	Com.	Pink	1	2300–2350° F.	S. P.	Excellent
18	Com.	Olive green	1	2300–2350° F.	S. P.	Excellent
19	Com.	Green	1	2300–2350° F.	S. P.	Excellent
20	Com.	Blue green	1	2300–2350° F.	S. P.	Excellent
21	Com.	Blue green	1	2300–2350° F.	S. P.	Excellent
22	Com.	Greenish blue	1	2300–2350° F.	S. P.	Excellent
23	Com.	Light greenish blue	1	2300–2350° F.	S. P.	Excellent
24	Com.	Very light greenish blue	1	2300–2350° F.	S. P.	Good; lacking somewhat in gloss.
25	Com.	Light yellow blue	1	2300–2350° F.	S. P.	Excellent
26	Com.	Yellow	1	2300–2350° F.	S. P.	Excellent
27	Com.	Light blue	1	2300–2350° F.	S. P.	Excellent
28	Com.	Blue	1	2300–2350° F.	S. P.	Excellent
29	Com.	Black	1	2300–2350° F.	S. P.	Excellent
30	Com.	Red	1	2300–2350° F.	S. P.	Excellent
31	Com.	Pink	1	2300–2350° F.	S. P.	Excellent
32	Com.	Pink	1	2300–2350° F.	S. P.	Excellent
33	Com.	Light pink	1	2300–2350° F.	S. P.	Excellent
34	Com.	Light lavender	1	2300–2350° F.	S. P.	Excellent
35	Com.	Lavender	1	2300–2350° F.	S. P.	Excellent
36	Com.	Green	1	2300° F.	S. P.	Excellent
37	Com.	White	2	2130° F.	S. P.	Poor; only 1 specimen submitted; rough surface.
38	Com.	White	2	2130° F.	S. P.	Poor; only 2 specimens submitted; glaze was pinholed.
39	Com.	Green	2	2130° F.	S. P.	Fair; glaze had tendency to blister.
40	Com.	Pink	2	2130° F.	S. P.	Poor; glaze was pinholed and rough; tint changed slightly.
41	Com.	Cream	2	2130° F.	S. P.	Good; glaze had tendency to blister.
42	Lab.	White	1	2300–2350° F.	S. P.	Excellent
43	Lab.	White	1	2300–2350° F.	S. P.	Excellent
44	Lab.	White	1	2300–2350° F.	S. P.	Excellent
45	Lab.	White	1	2300–2350° F.	S. P.	Fair; glaze was pinholed and was crazed, showing improper body.
46	Lab.	Yellow	1	2300–2350° F.	S. P.	Excellent
47	Lab.	Blue	1	2300–2350° F.	S. P.	Excellent
48	Lab.	Light blue	1	2300–2350° F.	S. P.	Excellent
49	Lab.	Dark green	1	2300–2350° F.	S. P.	Excellent
50	Lab.	Dark blue-green	1	2300–2350° F.	S. P.	Excellent
51	Lab.	Blue-green	1	2300–2350° F.	S. P.	Excellent
52	Lab.	Light green	1	2300–2350° F.	S. P.	Excellent
53	Lab.	Black	1	2300–2350° F.	S. P.	Excellent
54	Lab.	Pink	1	2300–2350° F.	S. P.	Excellent
55	Lab.	Light pink	1	2300–2350° F.	S. P.	Excellent
56	Lab.	Lavender	1	2300–2350° F.	S. P.	Excellent
57	Lab.	Mottled lavender	1	2300–2350° F.	S. P.	Excellent
58	Lab.	Dark mottled lavender	1	2300–2350° F.	S. P.	Excellent

Code: Com. = Glaze obtained from plant.
Lab. = Glaze prepared in laboratory of Ceramics Department.
Type 1 = One-fire glaze—body and glaze matured together.
Type 2 = Glaze applied to body already fired (two fire process).
E. P. = Electrical porcelain.
S. P. = Sanitary porcelain.

which were from seven different plants in this vicinity, and seventeen prepared in this laboratory. All except five of these glazes were of the one-fire type. The source, color, type, and maturing temperatures of the commercial glazes tested were as follows:

Manufacturer A—5 electrical porcelain glazes: 1 white, 3 colored and 1 clear glaze; one fire, cone 11-12 (2350° F.-2400° F.).

Manufacturer B—1 electrical porcelain glaze: black; one fire, cone 10 (233° F.).

Manufacturer C—10 sanitary porcelain glazes: 1 white and 9 colors; one fire, cone 10-12 (2300° F.-2400° F.).

Manufacturer D—18 sanitary porcelain glazes: all colored; one fire; cone 10-11 (2300° F.-2350° F.).

Manufacturer E—1 sanitary porcelain glaze: green; one fire; cone 10 (2300° F.).

Manufacturer F—1 electrical porcelain glaze: brown; one fire; cone 12 (2400° F.).

Manufacturer G—5 sanitary porcelain glazes: 1 white and 4 colored; two fire; cone 4 (2130° F.).

The seventeen glazes prepared in the laboratory included 4 white and 13 colored glazes, maturing at cone 10-11, all of the one-fire type such as are used in the production of porcelain wares. The data concerning the porcelain glazes tested and the results secured in direct-firing tests will be found in Table I.

Method of Firing Test Specimens

The method used in firing test specimens was essentially the same as that used in the firing of wall tile glazes, described in a previous article, with slight exceptions. The specimens were fired in a hearth-type gas furnace in which the products of combustion had free access to the specimens at all times. The specimens were elevated slightly above the hearth to promote an even temperature distribution. As in the case of wall tile glazes, it was found necessary to prevent any flame impingement directly upon the specimens, as blistering would result. This is very important. With the porcelain glazes tested, very little difficulty was experienced with the deposition of dust upon the pieces as they were fired.

The firing time for most of the specimens varied between four and eight hours, depending upon the maturing temperature of the glaze and the size of the specimens. The specimens were allowed to cool down inside the furnace, which took about twelve hours, from start to removal from furnace, making the total time from sixteen to twenty hours. However, the specimens of electrical porcelain submitted by Manufacturer F were fairly large, being five inches in diameter, and four and one-half inches in length. It was therefore necessary to heat these specimens quite slowly on account of their size, but they were successfully fired in as short a time as fourteen hours. This was a much faster rate of heating than in commercial practice, in which the same size piece is fired in about fifty hours and takes a correspondingly longer time for cooling. The tests on direct-firing showed that if more efficient means can be devised to transmit heat to ceramic wares, the firing time for almost all wares can be materially reduced without damage to either body or glaze. This is a very important point in

favor of direct-firing, wherein heat is transmitted to the ware by both radiation and convection, while the use of saggers and muffles means that the ware must be heated almost entirely by radiation.

Gas analyses of the furnace atmosphere in the various tests showed that the free oxygen content was between four and seven per cent in almost all cases.

Results of Direct-Firing Porcelain Glazes

Of the forty-one commercial porcelain glazes tested, only four failed to give excellent or good results on direct-firing. All four of the unsatisfactory glazes were submitted by Manufacturer G, and were of the two-fire type. Insufficient specimens were submitted of two of these four glazes to permit of enough tests to draw conclusions, as only one specimen of one of the glazes was tested and only two specimens of another. It was felt by the author that there were inherent faults in these four glazes which made them unsuitable for direct-firing. It was known also that much difficulty had been experienced by Manufacturer G in the indirect firing of these same glazes in muffle kilns, so it was decided that the defects evidenced by these glazes were not the result of the direct gas-firing tests. Faint differences in tint were evidenced by some of the commercial glazes tested in the direct-firing, as compared to the same glazes fired in muffles by the plant from which they were obtained. In this case, it is felt that a slight change in the amount of coloring oxide used in the glaze would correct so small a difference of this sort.

Of the seventeen laboratory-prepared glazes, only one was below par on direct-firing, but it is thought that this was at least partially due to the fact that it was not applied on a suitable body, as evidenced by the crazing of the glaze. All others were excellent, as regards smoothness, gloss and color.

Summary

1. Fifty-eight porcelain glazes have been direct-fired in an oxidizing furnace atmosphere composed of the products of combustion plus excess air. These glazes include:
   - A. Commercial Glazes.
     1. Electrical porcelain glazes.
        - a. White glazes.
        - b. Colored glazes.
     2. Sanitary porcelain glazes.
        - a. White glazes.
        - b. Colored glazes.
   - B. Glazes Prepared in the Laboratory.
     1. Sanitary porcelain glazes.
        - a. White glazes.
        - b. Colored glazes.
2. It has been shown that both white and colored porcelain glazes can be direct-fired without damage to either body or glaze.
3. The direct-firing tests have shown that flashing or direct impingement of flame against the glaze surfaces must be prevented to obtain successful results.
4. The direct-firing tests have shown that a material reduction in firing time can be obtained without damage to body or glaze. This last point is dependent upon:
   - A. Efficiency of heat transmission to ware.
   - B. Rate of heat penetration in ceramic materials.

Group Works Five Years Without Lost-Time Accident

These employees set safety record in New York

OFFICERS and department heads of the Consolidated Gas Company of New York and its affiliated gas companies were present December 20, at a special ceremony held at the Ravenswood gas manufacturing plant, Long Island City, when employees of the plant received a silver safety award for completing five years' operation without a lost-time accident.

John Stilwell, vice-president, and W. Cullen Morris, vice-president and chief engineer, presented an engraved silver bar to the workers. The bar was added to the bronze safety plaque which the company gives to all plants and departments for operating one year without lost-time accidents.

The Ravenswood Plant has operated a total of 1,725,084 man-hours without an accident involving loss of time from work. This record is considered one of the best in the company, being second only to that of the Elizabeth Street branch of the Customers' Service Department, which to date has operated for five and one-half consecutive years without an accident.

Reminiscences Of a Youthful Old-Timer

John F. Weedon

By John F. Weedon

WHEN grandmother's eyes are growing dim she is bound to begin telling you how much brighter the flowers bloomed when she was young. Something of the same kind is always likely to happen when an "old-timer" tries to tell you what life was like some forty or fifty years ago.

Looking down the long corridor of time is like squinting through the wrong end of a telescope. The field is diminished and the "slings and arrows" are too small to discover. Which goes to prove that the things which bear heaviest upon us are the soonest to sink into the background of our recollections, and only the brighter and happier ones remain. That is the reason, I suspect, we so often hear about "the good old times," which in comparison to the present were really anything but good. Particularly so with the gas man.

I don't think I was born to be a gas man. In my youth, in England, such a career never occurred to me. I remember thinking that the "dickey" of a hansom cab was the height of human ambitions. Later in life a seagoing career appealed to me; still later I wanted to be an actor; then, for a short time, the profession of law appealed to me. Justice, truth and right seemed to be something worth fighting for. That, of course, was before I became acquainted with lawyers.

Running through all these incipient ambitions, however, was a persistent case of scribbler's itch. I began contributing to my school paper, and writing letters to the *Times* (London) at the age of twelve. My mother had a steady and undeviating desire that I should become a clergyman—a fact that always has given me an inward chuckle, not from any disrespect for the "cloth," but from a keen appreciation of the fact that I was temperamentally disqualified for any such career.

Neither my mother's nor my own plans for the future ever quite materialized. On leaving school I became, in rapid succession, a telegraph operator, a ship's clerk, bookkeeper and shipper for an exporting firm, and filled in interims and evenings and out-of-work periods with minstrel shows and theatrical companies.

A luncheon conversation with an old friend in the Strand impressed me with the belief that to know the world one should see the world. In less than a week, I was packed and had my ticket to New York on the old Cunard steamer *Gallia*—made famous by Mark Twain. It was a walloping old tub, and took seventeen stormy days to make the trip.

My itinerary was easy, according to my friend. One just got a job in a city and earned sufficient money to take him to the next. By a process of "keep moving," one eventually arrived at the place of beginning, London, the only place in the world, in our then belief, in which to settle down.

I failed to bring any introductions with me, for the simple reason that I did not know a single soul in the U. S. Like the maid in the poem, "My face was my fortune," and I very nearly went broke. I began to realize many of my early aspirations all in a heap. I never managed to reach as high as a hansom cab, but I did drive a wagon. Also I did some work for a newspaper. I was a regular "supe," for supper money, at the Boston theater. I helped swell the mob in melodramas, carried a spear in Shakespeare's plays, and even got into an opera chorus. I looked after a second-hand bookstore when the proprietor was absent, and I clerked.

Also, and maybe this was in answer to my mother's prayers, I became a sort of handy man for a peripatetic evangelist, who knew all about the lost ten tribes, also where Zinfandel and oyster could be had for supper. In fact, I learned a lot from him about "where to eat well and cheaply," and he paid my wages promptly. So, I still consider the association profitable. Anyhow, in a couple of years I had not only paid my way, but saved enough to embark on the next leg of my journey, Chicago. I arrived on the spot, and I have been on the spot ever since. The rest of the trip around the world remains to be completed.

When I first sized up Chicago I came to the conclusion that if anyone went hungry in a town like this it was his own fault. But in a week or two I came to the conclusion that it must be the hardest place in the world in which to get a job. Again I drove a team, played stable boy, sold pickles to grocers and then, just as winter was starting, found myself out of a job and almost out of money.

It was then I picked up a job in the gas house. Valve man, $1.50 a day of 11 hours when you worked days, and 13 hours when you worked nights, 365

John F. Weedon, of Chicago, philosopher, raconteur and scribe extraordinary, has retired from The Peoples Gas Light and Coke Company, after forty-four years of continuous service. When he surrendered his post as superintendent of advertising, November 28, 137 of his associates honored him with a farewell dinner. Herewith Mr. Weedon reveals something of his colorful career.

days a year. During my first five years with the gas company I worked every day, including Sundays. The vicinity of the gas works was not a salubrious neighborhood for boarding, and one usually had to live at considerable distance. Transportation was slow, which added materially to the working hours.

It was just forty-four years ago that I settled down to be a gas man, and I might say that almost nothing very exciting has happened since. Gas men grow old very slowly. They seldom die, and retire even less frequently. When you get into the gas business, you are quite likely to be in "for life," —and, on the whole, after serving the sentence, I am bound to admit that it is rather a pleasant sort of life. My visions of "keep moving" began to fade. I settled down to raise a mortgage with one hand, and a family with the other—an occupation that kept me busy for some years.

I entered the gas business just in time to see the passing of the old coal gas retorts and the installation of the new water gas apparatus. Gas was sold solely for lighting purposes, coal gas providing a 16-candle power light, water gas about 23, and the Jerzmanowski process a rich gas of 30-candle power. There were some seven gas companies and competition was keen, based mostly on the illuminating qualities of the gas.

2-Cent Oil—$2 Coke

The coal gas by-products were more a matter of embarrassment and loss than of profit. Bakers and itinerant vendors of roasted chestnuts were the principal purchasers of coke, which in some instances sold as low as $2 a ton. Some chemical concerns were interested in coal tar, but I think the most of it went to farmers to paint their fences. Anyhow, it was hardly an asset.

On the other hand, oil companies were clamoring to find a market for their crude oil, and the price was extremely low—two cents a gallon or less. Then there was the question of labor. If I remember rightly, gas makers got $3.50 a day; whatever the amount, it was regarded as "big" wages in those days. Also, it took quite a large number of men to turn out a million cubic feet of gas in 24 hours.

One of my first recollections was a gas-makers' strike at the North Station. My acquaintance with the men led me to believe that it was rather a matter of more leisure they wanted, but they struck for an increase in pay. There was a method of charging a retort, well known to gas makers, that greatly increased the work of pulling out the load. The men went to work, bunged up their retorts, and then retired to an adjacent thirst parlor. The president of the company, Mr. Forstall, I believe, together with the secretary, hastened down to the plant. Calling the men together, he asked them what they wanted and was told an additional twenty-five cents a day. "Go back to your work, then," he told them, "The increase is granted."

This was not what they expected, but there was nothing to do but accept, and the men more than earned that extra twenty-five cents undoing the work they had done. This, and similar incidents, speeded the change from coal gas to water gas.

Gambling Era

The "eighties" was the age of gamblers. From where I sat it seemed to me that certain sets of gentlemen in the East played poker with Western gas companies, using securities and franchises for chips. Here and there one observed a real builder with ambitions to extend and develop the industry; sometimes a young engineer sent from the East to look after the property. A favorite sport among aldermen of the time was to intrigue a few real business men into joining them get a city gas franchise, and then sandbag the operating companies into buying it.

An attempt to consolidate the companies was made by Charles T. Yerkes, when he formed the Chicago Gas Trust. The scheme was reasonable and feasible and would have been to the advantage of both the public and the companies. It was eagerly supported by the gas managements and its securities soared. Then it ran foul of the Sherman anti-trust law, was declared an "illegal combination," and the securities hit the bottom with a dull sickening thud. The gas men were aghast. Only Yerkes smiled. He was a poker player, too, and had quietly cashed in his chips when prices were soaring. To the best of my belief it was his last appearance as a gas man.

Engineers with an inventive turn of mind began designing water gas apparatus, and various managements were tempted to try them. The state of the art was new and its development so rapid that many units were obsolete before their foundations were firmly set. Beside the Lowe machines there were the Springer, Flannery, Pratt and Ryan and others, each claiming particular advantages and soon or late developing particular disadvantages.

The Springer, for instance, sent volumes of thick, smelly, oil smoke over the roofs of our unfortunate neighbors. It grew into a scandal, and resulted in a group of indignant residents, led by the local priest, appealing to the Board of Aldermen for an abatement of the nuisance. It was on this historic occasion that the priest delivered himself of the opinion that "the trouble with a gas company is that it has neither a soul to save nor a behind to kick."

This happened, fortunately, at a time when the machine could be shut down, and the late John H. Eustace, then superintendent of the company, applied himself to devising ways and means of improving the operation without reducing the capacity of the machine. I believe he installed a partition wall in the machine, and succeeded in utilizing much of the oil that was being wasted and causing the smoke. I think that this, too, led to the "up and down" run. Anyhow, John H. got a patent on his idea which he afterwards turned over to John Williamson.

Gas Cooking Arrives

The Welsbach mantle made its appearance in the gay '90's, and none too soon, for the electric Mazda came soon afterwards and would have wiped out the business. A curious fact about the gas business is that whenever it seems to be at its lowest ebb, some new form of utilization appears and it goes ahead stronger than ever. The field for gas mantles was pretty well saturated by the turn of the century, and the Mazdas were still forging

ahead, when some one devised the inverted mantle and gave a new impetus to the business.

It soon developed, however, that a new outlet for gas must be found if it were to keep its place in the sun. Here and there people used gas for cooking, mostly hot plates with or without portable ovens. They were regarded as a convenience and an auxiliary rather than a regular cooking appliance. Gasoline ranges were having their day, and doing pretty good work, in spite of an occasional explosion. It was not the fault of the ranges, but the need, as someone expressed it "of having the darn stuff around." Some of the gasoline range manufacturers turned their attention to getting out a low priced gas range that would be efficient and serviceable. A fairly good sheet-steel range could be sold for $17—$1 down and a $1 a month.

John D. C. Clark, the most adventurous merchandising man I have ever known in the gas business, had charge of the campaign. House-to-house solicitors were sent out and results began to pile up. At first, considerable difficulty was encountered in denting the districts where a foreign language was the common tongue. This was conquered by a man named Cowin who, on his own initiative, loaded a gas range on a wagon, drove to one of these districts, connected the range by a rubber hose to a gas lamp, and then collected the women in the street to watch a demonstration.

"By or With?"

After lighting the gas, turning it on and off, he would thrust a box of matches into a woman's hand and make her go through the operation. Every demonstration netted him several orders with the initial dollar, and the scheme worked as well with Russian refugees as it did with Bohemian, Polish and Chinese. Within a year or two, practically every woman in Chicago had learned the advantages of cooking by gas.

Which reminds me that John Clark started a controversy that brought many hot letters from "Constant Readers" to the daily papers, on "Should It Be Cooking by Gas—or Cooking with Gas." I have not yet heard that the argument has been finally settled. John also launched another campaign, in face of much opposition, but which proved highly profitable for some years; that was renting gas arc lamps for space lighting. At one time we had 100,000 arc lamps on our books, and I figured that the gas consumed in the pilot lights amounted to enough in money to pay one per cent on the capital stock then outstanding. As a source of revenue gas arcs didn't become negligible until 1916.

I think it was about 1893 that the Peoples Company entered an agreement with the city to reduce the price of gas, then $1.25 per thousand cubic feet, five cents a year until it reached $1. Subsequently, I discovered that during those five years the average consumer's gas bill remained the same. Proving the contention of one of the officers that "The cheaper you make it, the more they will use." My own opinion is that the family gas bill is regulated by the family budget. A certain amount is accepted as required for gas. Only when that amount is exceeded does the family financier demand greater care in its use, and the household engineer tries to lay the blame on the gas company for "charging too much."

My forty-four years with the gas company falls into three main divisions. Five years at the works, twenty years at auditing, statistical work and bookkeeping, and nineteen years in advertising, publicity and public relations. Owing to the liberal and generous attitude of the management, these later years have passed pleasantly, and with much happiness.

Future Brighter Than Ever

During these years I have seen the inception and development of the Peoples Gas Club, the *Gas Club News*, the *Gas Gazette*, the Children's Christmas party, and other enterprises that have drawn the whole personnel of the company closer together, and I am proud to have had some part in their organization. I believe they will continue to flourish and be of service to our successors long after this generation has passed away.

But, after all, the past is past, and in spite of the marvelous developments in the industry that have taken place in the last fifty years, its future looms up bigger and brighter than ever. The history of the business shows that whenever it has reached a temporary slump it starts out again with bigger prospects of increased usefulness, larger extensions, and better conditions than it previously enjoyed.

These developments have always exceeded our expectations, and I believe that we are now on the threshold of an era that will utilize gas to an extent which now seems unbelievable. There is no terminus in sight, nor will there be until gas is being used for every purpose, domestic and industrial, where heat is needed. And many uses for gas at present undreamed of, will undoubtedly be discovered.

A. J. Llewellyn Heads Pennsylvania Gas Association

A. J. Llewellyn

A. J. LLEWELLYN, president, Luzerne County Gas & Electric Corporation, was elected president of the Pennsylvania Gas Association at a meeting of the association's council on November 23. He had previously been vice-president. His election as president fills the vacancy caused by the resignation of F. M. Milward Oliver.

T. W. McDonald, of York, second vice-president, and E. W. Ehmann, of Ardmore, third vice-president, were advanced to first and second vice-presidents, respectively.

Mr. Llewellyn started with the Luzerne Company in 1901 as a meter reader. He had been collector, bookkeeper, solicitor, lineman and superintendent prior to his appointment, in 1915, as manager of the Kingston division. He became president in April, 1928.

Gas Used To Melt Solder

Many tons of solder are used daily in large tin can factories. In most of these plants gas is used exclusively for preparing the solder for use and for melting down scrap and sweepings. The efficiency of applying gas to solder-melting has increased greatly in recent years, and industrial gas technicians say the end has not yet been reached.

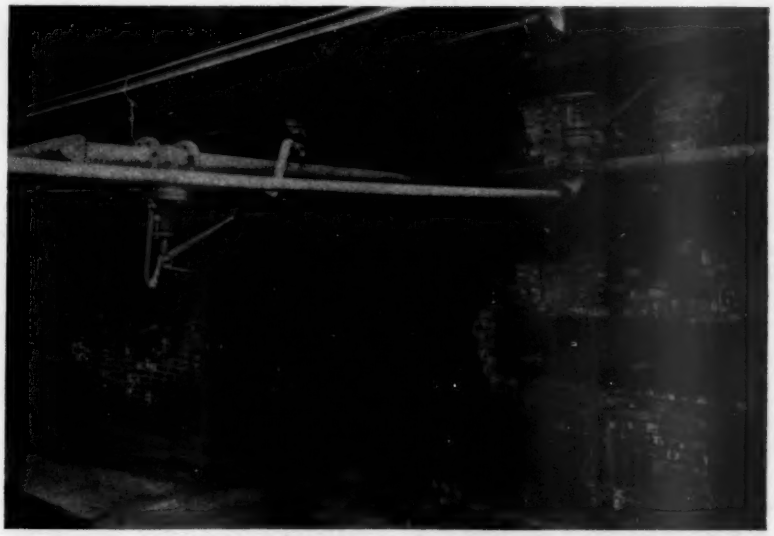
Mexican Ores Smelted With American Gas*

AMERICAN brains and capital have mined and smelted metals in Mexico for these many years, but it is only recently that American fuel has crossed the Rio Grande to assist in these processes. The fuel we refer to is natural gas and this has been piped from the State of Texas, U. S. A. to the City of Monterrey, Mexico, where it is utilized in a number of diverse industries including the making of power and electricity for the city itself. This gas is also employed in the smelter and refinery of the Compania Minera de Penoles, S.A., known as the Monterrey Smelter, which belongs to the American Metal Co., New York City. In fact nearly all of the smelters on the North American continent now use gas.

In this connection it might also be stated that natural gas has been piped across the border from the U. S. A. to supply fuel to the copper smelter at Cananea, Mexico. This gas line is an extension of the one from El Paso, Texas, which also supplies the copper industry in the cities of Bisbee and Douglas, Arizona, as well as the one at El Paso.

The Penoles plant is one of the world's large lead-silver smelters and is operated both as a commercial smelter and to smelt the product of the company's own mines. Of the ores received, about 70% are oxides and 30% sulphides. The sulphides and concentrates are mixed with the fine oxides in the proper ratio to bring the sulphur content down to approximately 8½% and the resulting mixes are crushed prior to sintering.

Standard Dwight Lloyd machines are used for sintering and these consist of cast-iron pallets with grating bottoms so fastened together as to form a flexible loop which can be turned between guiding rails by a power-driven sprocket. This, of course, brings the material progressively under the fire box where it is ignited and burns at a temperature of close to 1800° F. Originally they were fired from coke furnaces located just above the charges, but these have since been displaced by oil and then gas burning equipment. The present firing system consists of a small refractory lined steel box 18 in. wide, 12 in. deep and extends across the width of the machine. This is inverted so that the heat from the gas burners is deflected down on the charge.



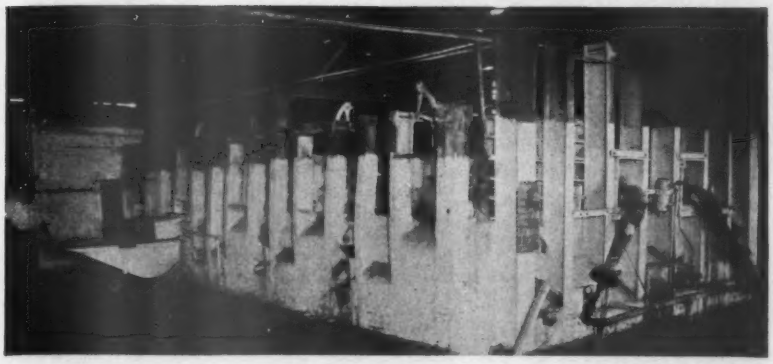
Rear view of boilers showing gas boilers used in Mexican Plant

This heat transfer is augmented by the refractory material becoming incandescent and radiating the heat, radiation being the fastest known method of heat transfer. Below the pallets is a wind box, connected by duct to a motor driven fan which produces an induced draft, and this pulls the heat through the charge and carries off the sulphur as SO_2. The sinter product analyses are as follows:

17—20% Insolubles
18—20% Iron
6—10% Lime
25—30% Lead
6— 8% Zinc
2% Sulphur
Gold
Silver

The blast furnace charges are made up from this sinter and the coarse oxide ores, with the proper amounts of barren limerock or iron as fluxes, when necessary. The resulting lead bullion contains 95-96% lead and about one per cent silver and gold mixed. There are four blast furnaces of 200 tons' capacity each and, of course, the reduction is accomplished by the use of coke. In some other smelters experiments are being carried on with gas as a supplementary fuel and with an idea to lowering fuel costs by cutting coke consumption to the theoretical minimum. Gas burners have been placed between the tuyeres and a large saving in coke is expected. The lead cakes are transferred to the refinery in standard gauge railroad cars and unloaded there by a traveling overhead crane running the entire length of the storage and premelting building.

* Reprinted, courtesy Engineering and Mining Journal.



Bullion softening furnace showing gas burners and continuous skimming of antimony

There are six storage or premelting kettles of 75 tons' capacity each. These are of cast iron and each sets in a brick and refractory furnace 12 ft. in diameter and 20 ft. high. Each is fired with a single gas burner, located about 3 ft. above the furnace floor level and firing tangentially to the inner wall. The bullion is kept at about 750° F. and what little copper it contains is removed in the dross. The cleaned lead is then sampled and moved by centrifugal pump to the softening or reverberatory furnaces.

There are four reverberatory furnaces of 150 tons' capacity each and they are 33 ft. long, 15 ft. wide and 2 ft. deep. The hearths and walls are of refractory blocks, suitably stayed and water cooled. Each furnace is fired at the charging end with two gas burners. The charging pipes from the kettles enter the furnace through small holes in the end, one on each side of the two burners which are centered. The arsenic and antimony are skimmed off and this skim is subsequently treated in another reverberatory for the recovery of the included lead and silver. Another treatment in a blast furnace yields antimonial lead which is employed in making babbitt, linotype metal, etc.

The softened bullion, containing only silver, gold and lead, is now tapped off into mechanically agitated desilverizing kettles, of which there are six. These are like the premelting kettles and are similarly fired with gas burners. Zinc is added which alloys with the silver and gold to form a high grade, silver, gold, lead and zinc alloy. Dross containing large portions of silver and gold, rises to the top and this is skimmed into a Howard press consisting of an air cylinder above a basket, both being held together by a steel frame. The basket is lowered into the bath and filled with dross and then lifted out while the piston of the air cylinder squeezes out the lead leaving a fairly dry crust. Excess zinc is added after pressing off the rich crust, to completely desilverize the lead and this separates from the lead as the contents of the kettle are cooled down and is removed in the form of "stubbs" or blocks to be used in the next charge, as "first zinc."

The desilverized lead, now containing ½% of zinc, is pumped into another series of kettles, similar in all respects to those already described, where the zinc is removed by the Harris process. This consists of pumping the molten lead through cylinders containing molten caustic soda. The machine, which is held above the bath by a frame spanning the kettle, is essentially a double cylinder, with an insulating air gap between, which extends about three feet below the surface of the bath. When the kettle is full of melted lead the inner cylinder is filled three quarters full of molten caustic soda, the pressure of the lead preventing it from coming out at the bottom. The lead is pumped through the caustic soda by a centrifugal pump a foot below the surface of the lead and circulated until all of the zinc has been taken up by the soda. The entire machine is then transferred by crane to the next kettle.

The lead is now fully refined and is pumped into a molding kettle where it is kept hot with gas burners, while it is being cast into 100-lb. pigs for shipment. The cast-iron molds are held in two semi-circular molding rings, each 30 ft. in diameter. The caustic soda containing zinc is granulated in water and the soda solution is removed, from the zinc oxide precipitate, in an Oliver filter. The soda solution is then evaporated in three

Sinter machine. Gas burner on new muffle just back of bed fire box

open pots or kettles, gas fired like the others.

The first zinc crust, produced in the desilverizing process, is put into graphite retorts where the zinc is distilled off and caught in condensers for reuse. These retorts (Faber-DuFour) are of the tilting type, pear shaped and have a capacity for 1500 lbs each. There are 10 of these retorts and each is swung on trunnions in a frame. The big ends of the retorts are enclosed in a furnace, one furnace for each, five retorts on each side of a central flue. Each furnace, which is of brick and refractory construction, is fired with one gas burner with two outlets for the flame, which keep the retorts at a temperature of from 2100 to 2500° F.

The resulting high grade silver, gold, lead alloy remaining in the retorts is transferred (molten) in ladles to a small reverberatory furnace (6 x 10 ft.) fired with two gas burners. High grade cyanide precipitate and other material rich in silver and gold, is added to further enrich the alloy. This product is then put into cupels which are similar to a reverberatory furnace except that the bottoms or hearths are built on cars so that they can be pulled out and away from the rest of the furnace on tracks for repairs and replacement. Each is about 8 ft. long and 5 ft. wide and the hearth consists of a cast-iron pan lined with a suitable monolithic refractory lining. Heat is supplied to each of three of these by a single gas burner and the lead is oxidized by aid of an air blast. The pan is tilted to permit the litharge to run off and this cycle gradually concentrates the silver and gold until the resulting product is 99½% pure. This is known as "dore" and is cast by hand into small anode bars which are taken to the parting plant for subsequent electrolytic separation and refining of the silver and gold.

The power plant contains three Walsh & Weidner boilers of 250 horsepower each which are operated under 220 lbs. steam pressure. These have been progressively equipped for burning coal, pulverized coal, oil and finally gas, the latter proving the best and most economical. Each boiler is provided with three gas burners. The furnace floors are laid on steel I beams leaving a 12-inch space below. Air for combustion at the burners is drawn through this space, where it is preheated, which produces still further economies. The steam is utilized to operate two turbines and two steam engines which in turn operate electrical generators and blowers to furnish blast for the furnaces. The electricity generated is used in motors, electric lights, etc.

In connection with the above it is interesting to note that the non-ferrous smelting industry of the United States has recently recast its cost figures with the substitution of natural gas as the fuel factor and found the change much to its advantage, both in cost and efficiency of utilization. This has been proven by the fact that most of the smelting capacity of the country has already adopted this fuel not only for roasting, reduction, sintering, drossing, smelting, etc., etc., but also for power.

The three big smelters near Salt Lake City, Utah, have been changed over from coal and oil firing to gas. Among these is the plant of the International Smelting Company, subsidiary of the Anaconda Copper Mining Company, which is equipped to smelt both copper and lead ores. Natural gas has also been adapted for the Anaconda, Montana, reduction works of this concern.

P. U. A. A. Announces Annual "Better Copy" Contest

THE annual "Better Copy" contest of the Public Utilities Advertising Association will be conducted again this year.

Louis D. Gibbs, assistant head of Public Relations Bureau of the Edison Electric Illuminating Company of Boston, has been selected as chairman of the Better Copy Committee.

Mr. Gibbs is a past president of the P. U. A. A., and as superintendent of Advertising of the Edison Company of Boston since 1910, has won numerous awards in these contests during the last seven years.

All entries must be addressed to Mr. Gibbs, 182 Tremont St., Boston, Massachusetts. The closing date will be announced later.

The awards will be announced as usual at the annual convention of the Association.

The rules and conditions of the contest follow:

1. The contest is open to all public utility operating companies which are represented by membership in the Public Utilities Advertising Association.

2. The contest embraces advertising published between January 1, 1933, and December 31, 1933, and includes newspaper, and outdoor advertisements and window display.

3. The subject matter eligible includes advertisements dealing with all features of utility operation. No Syndicate advertisements will be considered in this contest.

4. Companies may submit selection of not more than ten advertisements, and ten displays, in each division listed below. In the division for campaigns, not more than two campaigns of not more than ten advertisements each may be entered.

5. Entrant must designate the division in which various advertisements and displays are to be entered. Awards will be made for the best single advertisements, outdoor display, and window display in each class except the last in which awards will be made for a series of newspaper advertisements constituting a campaign.

6. Classes of advertising eligible for awards in the contest are as follows:

Gas Newspaper Advertising, to include all kinds of gas advertising—two awards.

Electric Newspaper Advertising, to include all kinds of electric advertising—two awards.

Transportation Newspaper Advertising, to include all kinds of transportation advertising—two awards.

Outdoor Advertising, to include posters, billboards and signs of all kinds—two awards.

Electric Window Displays—two awards.

Gas Window Displays—two awards.

General Utility Advertising, to include all other newspaper or magazine advertising not mentioned above—two awards (manufacturers may enter here).

Campaign Advertising, to include best series of newspaper advertisements (institutional, appliance or sales promotion) open to electric, gas, and transportation companies.

7. Newspaper advertisements submitted should be printed on enamel stock. Outdoor advertising and Window Displays submitted should be photographed prints, size 8 by 10 inches.

Henry Obermeyer's Book Inspires Advertising Campaign

AS a rule, advertising doesn't spring into action because of a book, but here's one instance where it did, and it created a stir in Fort Dodge, Iowa.

After reading "Stop That Smoke!" by Henry Obermeyer, T. C. Roderick, general manager of the Fort Dodge Gas and Electric Company, purchased copies and distributed them among his sales force and to some of the town's influential citizens. Then an outdoor advertising idea occurred to him.

The accompanying pictures show the results. The first poster appeared for a month

with no advertising on it other than "Stop That Smoke!" This caused considerable interest and much curiosity as to who was

responsible for it. The second board was then introduced for a month, carrying a message identifying it with gas. This was followed by the third board, which eliminated "Stop That Smoke!" and substituted "No smoke, soot, ash or sulphur."

Note that none of the boards carries the company's name. "This," says Mr. Roderick, "has added to the effectiveness of the advertising campaign."

Brooklyn Union Enrolls Large Class in A. G. A. Course at Columbia

ON December 1, the Home Study Department of Columbia University, New York, N. Y., completed the enrollment of thirty-one new students in the revised course on American Gas Practice conducted under the auspices of the American Gas Association. These men are all employees of The Brooklyn Union Gas Company, Brooklyn, N. Y., and include cadet engineers, draftsmen, sales engineers and foremen.

Twelve of these men have college degrees and practically all of the others have successfully completed the Brooklyn Polytechnic course in Elements of Gas Engineering.

Industrial Gas Men To See New Installations

A joint meeting of the Metropolitan Industrial Gas Sales Council of New York City, and the Philadelphia Industrial Gas Sales Council, will be held January 17, in Trenton, N. J. The meeting, preceded by a luncheon, will be held in the Carteret Club at 1:30 o'clock.

In the morning inspections will be made of two plants where important gas installations have been made. The first inspection will be at the plant of Lenox, Inc., one of America's foremost producers of chinaware. At this plant there has been developed, and recently put in operation, through the efforts of the Industrial Research Committee of the American Gas Association, the first successful direct gas-fired kiln for glost firing of chinaware. This furnace embodies the solution of many mechanical and combustion problems worked out in cooperation with Lenox, Inc., and Rutgers University.

The second inspection will be made at the plant of the Morrison Art Tile Company, Morrisville, Pa., one of the largest producers of tile in this country. At this plant three tunnel kilns, 120 feet long, have been converted from electricity to gas fuel.

Gas Revenues Decline 5.6 Per Cent in 1933

REVENUES from manufactured gas and natural gas utilities in the United States in 1933 aggregated $685,000,000, representing a decrease of 5.6 per cent from the 1932 figure, according to Alexander Forward, managing director of the Association.

Alexander Forward

The manufactured gas companies reported revenues of $380,000,000 for the year, or 7.5 per cent less than for the same period of the preceding year, while revenues of the natural gas utilities aggregated $305,000,000, a decline of 3 per cent, according to preliminary estimates of the Association's statistical department.

Sales of manufactured gas reported for 1933 totalled 340,000,000,000 cu.ft., a loss of 5 per cent, while natural gas sales were 850,000,000,000 cu.ft., or an increase of 2 per cent over the corresponding period of the preceding year.

The decline in natural gas sales for domestic and commercial purposes was relatively small, amounting to less than 4.2 per cent. However, natural gas sales for industrial purposes registered an increase of about 7 per cent.

The amount of natural gas used for non-utility purposes, including manufacture of carbon black and consumed in oil and gas field operations apparently was the same as for 1932, with the result that the entire consumption of natural gas for all purposes during 1933 is expected to run about 1 per cent above the corresponding figure for 1932.

Natural gas customers in 1933 were only 0.5 per cent fewer than in 1932.

Eastern Sales Conference Opens in Pittsburgh Feb. 8

AT a meeting of the Eastern Natural Gas Regional Sales Council, under the auspices of the Commercial Section of the American Gas Association, in Pittsburgh, December 11, it was decided to hold the Eastern Natural Gas Regional Sales Conference February 8 and 9 at the William Penn Hotel, Pittsburgh. This conference embraces natural gas sales activities in New York, Ohio, Pennsylvania, West Virginia and Kentucky.

An interesting program is being prepared by the committee in charge. The following are among the subjects to be discussed:

"With Radiant Heaters," "With Circulating Heaters," "With Unit Heaters," "Refrigeration from the Natural Gas Viewpoint," "Rental — Lease — Sales — Plans," "Large Volume Water Heating," "Holding and Developing the Industrial Gas Load," "Customer Reaction from the Home Service Viewpoint," "Necessity of Sales Development from the Executive's Viewpoint," "Executive Advertising under Today's Conditions," "Hotel and Restaurant Sales Development Activities" and "Winter Air Conditioning."

Among the speakers who have been invited to take part in this program are the following:

William F. Eve, Jr., Atlanta Gas Light Co., Atlanta, Ga.; O. J. Haagen, Columbus, Ohio; L. F. Ryall, General Gas Light Co., Kalamazoo, Mich.; B. H. Gardner, Columbia Engineering & Management Corp., Columbus, Ohio; Davis M. DeBard, Stone & Webster Service Corp., New York, N. Y.; H. B. Yost, Hope Natural Gas Co., Clarksburg, W. Va.; Karl Emmerling, East Ohio Gas Co., Cleveland, Ohio; French Robinson, Peoples Natural Gas Co., Pittsburgh, Pa.; R. H. Staniford, The Brooklyn Union Gas Co., Brooklyn, N. Y.; and Lyle C. Harvey, Bryant Heater Co., Cleveland, Ohio.

Members of the Eastern Natural Gas Regional Sales Council are as follows:

E. E. McCormick, Chairman, Peoples Natural Gas Co., Pittsburgh, Pa.; Karl Emmerling, East Ohio Gas Co., Cleveland, Ohio; B. H. Gardner, Columbia Engineering & Management Corp., Columbus, Ohio; G. M. Harr, Monongahela West Penn Public Service Co., Fairmont, W. Va.; F. B. Jones, Equitable Gas Co., Pittsburgh, Pa.; T. C. Jones, Delaware Gas Co., Delaware, Ohio; Robert Montgomery, Louisville Gas & Elec. Co., Louisville, Ky.; P. L. Mulkin, United Natural Gas Co., Oil City, Pa.; R. E. Polk, Equitable Gas Co., Pittsburgh, Pa.; Wm. F. Reid, Manufacturers Light & Heat Co., Pittsburgh, Pa.; S. B. Severson, Republic Light Heat & Power Co., Buffalo, N. Y.; and H. B. Yost, Hope Natural Gas Co., Clarksburg, W. Va.

Charles E. Gallagher Heads East Ohio Company

CHARLES E. GALLAGHER, formerly vice-president and general manager, has been elected president of the East Ohio Gas Company, Cleveland, Ohio. He succeeds his brother, Ralph W. Gallagher, who resigned recently to become a director of the Standard Oil Company of New Jersey, in charge of its natural gas operations.

Convention Calendar

January 1934

23-26 **American Institute of Electrical Engineers**
New York, N. Y.

26-28 **American Society of Heating & Ventilating Engineers**
Detroit, Mich.

February

5- 8 **American Society Heating & Ventilating Engineers**
New York, N. Y.

8- 9 **New England Gas Association Convention**
Boston, Mass.

15-16 **Mid-West Regional Gas Sales Conference**
Chicago, Ill.

March

6- 7 **Oklahoma Utilities Association**
Tulsa, Okla.

23 **New Jersey Gas Association**
Trenton, N. J.

25-30 **American Chemical Society**
St. Petersburg, Fla.

April

16-17-18 **Mid-West Gas Association**
Sioux City, Iowa.

May

1- 4 **U. S. Chamber of Commerce**
Washington, D. C.

14-18 **National Fire Protection Association**
Atlantic City, N. J.

24 **National Board of Fire Underwriters**
New York, N. Y.

June

4- 5 **Canadian Gas Association**
Montreal, Canada

18-21 **National Association of Purchasing Agents**
Cleveland, Ohio

25-29 **American Institute Electrical Engineers**
Hot Springs, Va.

September

9 **American Trade Association Executives**
Wernersville, Pa.

October

Wk. 29 **American Gas Association Convention and Exhibition**
Atlantic City, N. J.

BOOK REVIEW

Theory of Industrial Gas Heating. By Peter Lloyd. 5½ x 8½. 104 pp. Illustrated with 27 line drawings. Published by Walter King, Ltd., London.

Under the title of "Theory of Industrial Gas Heating" Peter Lloyd has written a very handy little book covering some of the principal theoretical phases of industrial gas heating.

It is impossible to read this English book without drawing comparisons with our own book "Combustion." The present book is very much smaller and includes the principal theoretical considerations, rather than going into the details of application, as has been done in our own book.

English practice apparently differs considerably from American, especially on such points as completely premixed systems, which the author regards with some trepidation. He states, "Such mixtures which are ultimately led to the burner are of a highly explosive nature so that it is not possible to run a supply for any great distance."

The chapter devoted to the control of combustion and the removal of flue gases is excellent, although brief. The well-known work of Masterman on chimney flues has been used as the basis for the treatment of the flue gas discharge. However, there does not appear to be any information on the sizing of the flue openings out of industrial furnaces, a feature of design which has been recently treated in the A. G. A. publication on "The Fundamentals of Combustion Space Requirements."

The book concludes with a brief bibliography of ten books, of which Trinks' "Industrial Furnaces," Haslam & Russell's "Fuels and Their Combustion" and Edgar Wilcox's "Electric Heating" are the American examples.

—C. G. S.

Amarillo Affiliates Hold Annual Meeting

THE third annual meeting of the affiliates of the Amarillo Oil Company, Amarillo, Texas, was held recently at that place. The companies represented included: Amarillo Oil Company, Amarillo Gas Company, Canadian River Gas Company, Clayton Gas Company, Dalhart Gas Company, Panhandle Pipe Line Company, Red River Gas Company and West Texas Gas Company.

This meeting was for the purpose of discussing various problems connected with the transmission and distribution of natural gas, and proved successful. About 130 employees attended. The principle topics of discussion were:

"Reconditioning of Transmission Pipe Lines," "Pipe Coatings and Corrosion," "Gas Measurements," "Standard Installations," "Leakage and Unaccounted for Gas, Distribution Plants," "Cementing Friendly Customer Relations," "Report on Results of Safety Program," "Consumers Survey Reports," "Merchandising and Collections," "Use and Care of Company Autos and Trucks," and "Miscellaneous Employees' Problems."

As an entertainment feature, a smoker and supper was held at the Herring Hotel.

Direct Mail Advertising Award to Electrolux

ELECTROLUX Refrigerator Sales, Inc., is a winner for the third consecutive year of an award granted annually by the Direct Mail Advertising Association to fifty firms for the most effective methods used in direct mail advertising. Electrolux Refrigerator Sales, Inc., was responsible for distribution during 1933 of 12,500,000 separate pieces of advertising matter through the mails as a supplement to its newspaper and magazine advertising, the announcement stated.

The award gives to the winners the privilege of participating in the Direct Mail Leaders Exhibit, sponsored by the association which is a form of travelling display shown in cities and towns all over the United States and Canada.

The set-up which resulted in Electrolux winning the 1933 award as well as in 1931 and 1932, was the work of the sales promotion department of which Howarth S. Boyle is sales promotion manager.

Four Brooklyn Union Men Receive McCarter Medals

Chas. Cottam

FOUR employees of the Brooklyn Union Gas Company, Brooklyn, N. Y., were presented with Thomas N. McCarter Medals on November 9 for having saved the lives of persons overcome by gas through application of the prone pressure method of resuscitation.

The awards were made before a group of 600 people who had gathered to take part in the Brooklyn Union's ninth annual service emblem dinner. Those honored with the McCarter Medals, which were awarded on behalf of the American Gas Association, follow:

Charles Cottam, transportation divison; Samuel J. Lesser, shop section, customers service division; Louis F. Stegner, shop section, customers service division, and Thomas F. Whitty, street division.

S. J. Lesser

At the time of the presentation of the McCarter Medals, employees of the company who had completed a quarter-century or more of service or made notable contributions also were recognized and honored.

Presentations of service emblems, medals and awards were made by Clifford E. Paige and F. Christopher Weber, vice presidents and Herbert Wellington, treasurer. Mr. Paige, former president of the American Gas Association, spoke on the status and problems and progress of the gas industry. C. C. Atwood, assistant chief engineer, introduced the speaker and those who presented the awards.

L. F. Stegner

A total of 131 employees received service emblems. These emblems denote service of 25, 30, 35, 40, 45 and 50 years. Six emblems were presented to employees completing 50 years of service. The 45-year group contained nine men; the 40-year group, 17; 35-year group, nine; 30-year group, 16, and the 25-year group, 74.

The addition of the 74 persons on the 25-year group to the company's service honor roll of those who have completed a quarter century of service brings the total on the roll to 562. Of this number 394 are still in active service, including President James H. Jourdan and Vice-President Arthur F. Staniford (Mr. Staniford died November 11) who completed 51 and 52 years of service, respectively.

T. F. Whitty

Seventeen employees were presented special awards for having made some outstanding contribution in the form of some invention or marked proficiency in their daily work. Three got awards for inventions, the remaining 14 being honored for special skill in their work.

TESTING LABORATORY

R. M. CONNER, Director

Managing Committee: J. S. DeHART, Jr., Chairman N. T. SELLMAN, Secretary

Five Sets of Requirements Accepted by A. G. A. Approval Requirements Committee

COMPLETION of extensive research activities by the Cleveland Laboratory, and of a considerable amount of work by the Approval Requirements Committee and several of its subcommittees, was culminated at the November 23-24 meeting of the latter group when the following requirements were approved for submission to the American Standards Association for adoption as American Standard:

Approval Requirements for Industrial Gas Boilers.

Listing Requirements for Gas Conversion Burners.

Listing Requirements for Gas Burner Valves.

Approval Requirements for Gas Unit Heaters.

Approval Requirements for Central Heating Gas Appliances.

The first three of the above-mentioned requirements cover appliances and accessories for which standards of construction and performance have not heretofore existed. Manufacturers may now submit such appliances and accessories for examination for approval or listing, as the case may be. In accordance with Association policies, central heating gas appliances and unit heaters may be tested for compliance with the revised specifications instead of the requirements now in force, upon written application by the manufacturer.

A brief outline of the history of the development and revision of these requirements is given to indicate the nature of the projects.

In answer to a demand by the industry for standards of performance and construction for industrial gas boilers, the Approval Requirements Committee, in June, 1930, organized a subcommittee for the purpose of preparing specifications for such appliances. The completion of this project makes available requirements which cover every phase of industrial gas boiler construction and performance, and which are representative of the decision of leaders in this field based on extensive research by the Testing Laboratory. These standards mark the continuance of the policy of the Association to prepare specifications for unit industrial appliances where the need for such standards is demonstrated.

In recent years the rapid increase in the number of communities distributing natural gas, as well as the tendency toward lower house heating rates, have resulted in a widespread use of gas conversion burners. The preparation of requirements covering the installation of such equipment was the first project initiated by the Association in an endeavor to provide the industry with standards governing this type of accessory. These specifications were approved as American Standard in January of this year. The recent approval of Listing Requirements for Gas Conversion Burners constitutes the final step in this field. The application of these listing requirements should insure satisfactory construction and performance of gas conversion burners, and when used in conjunction with the installation standards, should result in the economical and safe use of such equipment.

Formerly, specifications for gas unit heaters were included in the Approval Requirements for Central Heating Gas Appliances. The increasing importance of such appliances, together with their extensive use for garage heating and other industrial applications, pointed to the desirability of placing requirements for them under the jurisdiction of a separate specialized subcommittee. This was done, and the Approval Requirements for Gas Unit Heaters, recently approved, are the result of the efforts of the new subcommittee. Standards developed are similar to those formerly in force, but have been expanded and made more rigid in many respects.

The new edition of the Approval Requirements for Central Heating Gas Appliances includes revisions affected in these specifications since publication of the last edition, September 1, 1930. As would be expected, numerous changes have been made in order to keep abreast of the rapid advancement in construction and design of furnaces and boilers during that period. It is noteworthy that these standards have not only been enlarged to cover new developments, but that in many instances provisions have been made much more rigid.

The new Listing Requirements for Gas Burner Valves contain complete specifications relating to the construction and performance of these accessories. Their preparation and final approval marks another forward step in the program of establishing requirements covering all common types of gas appliance accessories. One of the most interesting of the many unique tests conducted in approval or listing examinations may be found in these requirements. It is essentially an accelerated test which consists of opening and closing gas burner valves in a machine designed and built at the Testing Laboratory and in which temperature conditions simulating normal operation are attained. In this manner the wear on valves occasioned by years of usage is duplicated in a brief period of time.

Changes in Gas Range Approval Requirements Effective Immediately

SEVERAL revisions to the current Approval Requirements for Gas Ranges of special interest to manufacturers were made by the Gas Range Subcommittee at its meeting in November. These revisions were approved by the A. S. A. Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee, and are to go into effect immediately. The full text of the revised sections, which will hereafter be enforced by the A. G. A. Testing Laboratory in approval testing, has been included in a notice submitted to all gas range manufacturers.

Sections of the performance requirements affected by this action are those pertaining to oven heating capacity, thermostat, and gas cock temperature tests. The oven heating capacity test previously specified that the oven temperature should be raised from room temperature to 500 degrees Fahrenheit within 20 minutes. Obviously, the variable factor of room temperature had considerable effect on the results obtained. Consequently, the text has been revised so that the same temperature rise must be effected at an average heating rate of not less than 21.5 degrees Fahrenheit per minute, thereby compensating for changes in test room temperature.

The portion of the thermostat test which was revised, formerly required that the oven temperature should not vary more than 25 degrees Fahrenheit as a result of simultaneous operation of any section of the range with the oven. The test method specified that determination of compliance with this requirement should be made after the oven temperature had become constant. The text has been revised so that such determinations must be made at the end of one hour's operation. It is believed that this limitation is more in accord with actual cooking practices, and that the temperature reached at the end of the period now specified would approximate equilibrium temperature conditions.

A recent trend in the design of gas cocks has been toward the development of cocks which will operate more satisfactorily at high temperatures. It was felt that the existing performance test, which limits the permissible temperature rise of gas cock bodies to 200 degrees Fahrenheit above room temperature, was restricting their development to some extent. Accordingly the text has been revised so that the temperature of each gas cock body is to be determined at the end of one hour's operation of all sections of the range. It is further stipulated in the revised text that the cocks are to be removed from the range, placed in the Laboratory gas cock testing machine, and subjected to a number of cycles of operation alternately at room temperature and at the elevated temperatures as determined. After this procedure the cocks are required to operate easily and without leakage.

It was the opinion of the Gas Range Committee that these changes provided in every instance a more equitable test method and did not affect the intent sufficiently to require re-designing of any range parts or accessories. On the contrary, it was felt that more latitude was being afforded to manufacturers in the development of their appliances. Consequently, immediate application of the changes was thought desirable in view of their probable value as an aid to an even more rapid advancement of the art.

The above mentioned revisions are to supersede similar specifications in the American Recommended Practice A. G. A. Approval Requirements for Gas Ranges, effective March 1, 1933, and the American Standard Approval Requirements for Gas Ranges, effective June 1, 1934.

Mr. Couzens Resigns from Laboratory Staff

W. M. COUZENS, supervisor of the Pacific Coast Branch of the A. G. A. Testing Laboratory, and for eight months one of the department heads at the Cleveland Laboratory, announced his resignation from the Laboratory, effective December 1. He joins Grayson Appliances, Lynwood (Cal.), to become the eastern manager for that firm.

Research on Heating at Mellon Institute

ACCORDING to an announcement by Dr. Edward R. Weidlein, director, Mellon Institute of Industrial Research, Pittsburgh, Pa., the Multiple Industrial Fellowship on heating, sustained in the Institute since 1929 by the National Radiator Corporation, Johnstown, Pa., is continuing actively a number of investigations of interest to heating specialists as well as users of heating equipment. In addition, the Fellowship, whose incumbents are Dr. J. L. Young and A. C. Jephson, has been lately according more and more research attention to certain problems in air conditioning and also to the development of new products.

After a thorough investigation of ferrous and non-ferrous heating units, the Fellowship has found that cast iron is the most suitable metal for the construction of finned convectors. Results of work on impregnated wood foundry patterns, now fully patented, are likewise of interest to heating industrialists; this development is of broad application in the foundry field. During the past three years the Fellowship has been engaged in the development of corrosion-resistant materials especially for use in the petroleum and other process industries, conducting this investigation in collaboration with the research department of the National Radiator Corporation. During the course of these studies the findings of the International Nickel Company respecting the place and utility of "Ni-Resist" have been corroborated. The Fellowship has also had a productive part in the design of National condensing sections, for which broad patent protection has been secured.

It is planned to describe the investigational results at length in the literature just as soon as all phases of the researches on the Fellowship program are concluded.

St. Paul Collector Receives McCarter Medal

Presentation of McCarter Medal and Certificate to Leonard E. Rench.

THROUGH application of the prone pressure method of resuscitation, Leonard E. Rench, a collector of the Northern States Power Company, St. Paul, Minn., saved the life of a man who had been overcome by gas. In recognition of his act, Mr. Rench was presented with a Thomas N. McCarter Medal. The medal was bestowed in behalf of the American Gas Association by G. O. House, general manager of the St. Paul Division of the company, in the presence of a group of department heads.

The shores of fortune are strewn with the wrecks of brilliant men who lacked the courage, faith and determination to make port.

Table of Contents

Can Smoke Be Beautiful?
The Fires Are Lit
Full Blast
A Problem Becomes a Peril
The Challenge to Health
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NEW YORK, N. Y.

ACCOUNTING SECTION

E. B. NUTT, Chairman H. W. HARTMAN, Secretary A. S. CORSON, Vice-Chairman

Heroes, Unhonored and Unsung*

By T. H. Million

General Supervisor Credits and Collections, Philadelphia Electric Company

TWO popular radio stars recently indulged in a little light-hearted rivalry about their prospects for future employment. One said boastfully, "There are three big companies after me." The other asked, "Who are they?" The former replied, "The Gas, Electric and Telephone Companies."

A quip such as this is always good for a laugh. There is something about collectors and collection policies which now and then does not react favorably in the best of us. Yet, the collector has been a maligned and often misjudged man. Part of this has been due to the taking of a bird's-eye view of the requirements of his job by the collector. He has approached it by long and devious routes, often accepting it as a last resource when other avenues of employment were closed to him.

Self-confidence and physical fitness were once the prime prerequisites for a calling—that of the collector—which is now recognized as of crucial importance in public relations. The collector of old started out with a benediction which ran something like this: "Don't say anything and don't do anything to antagonize customers. Don't be discourteous." All this was good advice, so far as it went, but when the Philadelphia Electric Company espoused the ideal of personal contact, which must be no less perfect than electrical contact, the importance of our collection policy and the competence of our collectors became apparent. Both the collection policy and the collectors had to be overhauled and the work rearranged so that it would be rendered as reasonably and as efficiently as changing economic conditions demanded. It was just as important that every employee know how equitable were our policies and procedures.

This meant a thorough grounding in the economics of the industry, followed by specific job training. It must be said to the credit of our collectors that they have quickly grasped the salient features of both. There is no question but that the instruction is fulfilling the hopes of its sponsors, if this should be judged by the greatly decreased ratio of recorded cases of customer irritation caused by collectors. That this should be so under present-day conditions, when the collection of accounts is the pre-eminent problem, is a highly meritorious achievement.

Of all our contact forces the collector meets customers under the most adverse conditions. He visits all classes of customers. People of every creed and color are his clientele. But the collector must maintain his dignity. He is "the company" to them and the consciousness of this is both a privilege and a great responsibility. He often swallows his pride and bites his lip to refrain from taking personal issue for the sake of the company. He is no longer a mere link in a chain, but a dynamic personality. Considerate of his appearance and deportment, he is buoyed by a clear knowledge of his job and the jobs of all others who work in cooperation with him. He starts out in the morning as an ambassador of good will. No ambassador ever entered a country which bristled with more acute diplomatic problems, nor embarked on a more hazardous mission, than the average collector faces every working day. The ambassador can be counted on to represent his country so as to allay any smouldering suspicion of aggression or unfairness. The collector is called upon to achieve the same results and at the same time be ever conscious that he must secure the end for which he is employed—the prompt settlement of bills.

In many instances, the collector is apt to be regarded as a rank intruder unless he is able to turn a trying situation into a satisfactory interview. His coming has been heralded, it is true, but the announcement never acts as an open sesame. He does not call at the invitation of the customer and is not generally received with the same cordiality enjoyed by transfer men, meter readers and salesmen. If he is to avoid reflecting the mood of customers who are harrassed and perplexed by unpaid bills, he must turn the stumbling blocks of debt and distress into stepping stones to mutual understanding. The only way to do this is to treat each individual customer as though his account were for the time being his only assignment.

Friendliness Wins

No two customers are precisely alike. Each one has a strictly personal bias which the collector must sense. For this reason, he must momentarily forget the preceding calls. If a prior interview was unpleasant, if the weather is inclement, if he is feeling the strain of fatigue, none of these circumstances must be allowed to conspire against him. He must not be defeated at the outset. The hostility of customers often gains impetus at the approach of a representative whose poise and personality are at low ebb. Few can resist a friendly greeting that bespeaks good nature, no matter what their own mood may be. Cheerfulness wins every time.

Customers who are in financial difficulty are in a sense pleading to be understood, hoping that we will appreciate their troubles. A word of hope and encouragement, a sign that we are interested and that we feel sorry, are perhaps all that we can offer, but they help to prove that our company is not without regard for human feelings. Sensible people are willing to admit that there are definite limits to our forbearance, that we should and must be paid for service rendered. What they most resent is what looks to them as an absence of feeling. When they are reassured on this point, they are free to confess that their quarrel is not so much with the company as with a world that is out of joint. Such admissions are more common than many would suppose, and are a tribute to a group of men who have been taught and have avidly learned the true meaning of the word "contact" and the deeper meaning of courtesy.

Developing "Touch"

The dictionary tells us that contact is "touch." There is a touch that is cold and impersonal; one that quotes rules suggestive of red tape from which people recoil with loathing, no matter how logical it may seem. There is another "touch" that, whilst perhaps lacking finesse, is direct, personal, considerate and convincing. This is the "touch" we seek to develop in our collectors.

The essence of good contact is courtesy. What often passes for courtesy is the mere absence of such faults as being argumentative, critical, resentful, arbitrary, and other breaches of social etiquette, such as failure to remove the hat in the presence of customers, loud knocking and prolonged ringing of door bells, without cause, and numerous other things. Our collectors are being taught that they may not be guilty of any of these evidences of ill-breeding, and yet not be courteous in the deeper sense of the word, as used by Philadelphia Electric Company.

The ideal of our company is not merely to avoid criticism and condemnation, but to do something positive, to win and maintain the good will of the public. This calls for a delicately-balanced judgment. The collector must know the policies and be governed by them, and interpret them to each customer in such a way as to make them clear and just. He can do this in most cases, and is daily and hourly winning his peace-time victories—a hero unhonored and unsung. Unlike the Light Brigade at Balaclava, of whom posterity is wont to say, "Their's not to reason why . . . . ," the collector has a clear conception of his duties and a knowledge that he is "the company." He *does* "reason why."

* Reprinted Courtesy of U. G. I. Circle.

COMMERCIAL SECTION

N. T. SELLMAN, Chairman J. W. WEST, Jr., Secretary F. M. ROSENKRANS, Vice-Chairman

Ennis, Texas, Leads Winners In Ice Cube Contest

WINNERS in the Ice Cube Contest, sponsored by the Refrigeration Committee, Commercial Section, American Gas Association, were announced last month by R. A. Malony, chairman. They were:

First prize, $750—won by the Municipal Gas Company, Ennis, Texas, with an average of 372 ice cubes per 100 meters. Credit for this achievement is due to J. H. Duke, local manager, and his sales associates. The sum of $200 was awarded Mr. Duke, and the remaining $550 was distributed among his salesmen. The Municipal Gas Company is a subsidiary of the Lone Star Gas Corporation.

Second prize, $500—won by the Municipal Gas Company, Hillsboro, Texas, with an average of 233.1 ice cubes per 100 meters. E. L. Buelow, local manager, received $150 of this sum and the remaining $350 was distributed among members of his sales staff. This company also is a subsidiary of the Lone Star Gas Corporation.

Third prize, $250—won by the Sumter Gas and Power Company, Sumter, South Carolina, with an average of 160.2 ice cubes per 100 meters. J. S. Rider, local manager, received $50 as his share of this award, the remaining $200 being distributed in the same manner as the other awards.

Fourth prize, $200—won by the Concord office, of the Boston Consolidated Gas Company, Boston, Mass. It was not originally planned to award a fourth prize, but this was done because the first two prizes were captured by the sales forces in the same company.

"Thanks to the immediate and enthusiastic response of the gas companies of the country, the first prize contest conducted by the Refrigeration Committee of the A.G.A. was a success from the start," said Mr. Malony, in announcing the names of the winners. He continued: "During this time more than 300 local gas company sales offices, with three and a half million retail meters, contested vigorously to sell the most ice cubes.

"The contest began July 1 and ended October 30. Until the last report was received on November 15, it was impossible to predict the winners. The running was close.

"The winners of this contest may be justly proud of their records. They have proved, beyond the shadow of a doubt, what consistent and well-planned effort can do in selling gas refrigeration. Their example and the whole-hearted cooperation of so many gas companies in willingly shouldering the considerable paper work and necessary detailed recording of information, encourages the committee to anticipate future contest of this kind and even greater sales successes."

While it is impossible to list the standing of all contestants, the first twenty finished in the following order:

1. Municipal Gas Company, Ennis, Texas office.
2. Municipal Gas Company, Hillsboro, Texas office.
3. Sumter Gas & Power Co., Sumter, South Carolina.
4. Boston Consolidated Gas Co., Concord, Massachusetts office.
5. Municipal Gas Co., Bowie, Texas office.
6. Alabama Natural Gas Co., Talladega, Alabama office.
7. Mississippi Service Corp., Columbus, Mississippi.
8. Southern Gas Utilities, Seguin, Texas.
9. Ramapo Gas Corp., Spring Valley, N. Y. office.
10. Southern California Gas Co., Taft, California office.
11. Portsmouth Gas Co., Portsmouth, Virginia.
12. Illinois Gas Co., Lawrenceville, Illinois.
13. Palestine Light, Heat & Power Co., Palestine, Texas.
14. Portsmouth Gas Co., Portsmouth, New Hampshire.
15. Public Service Corp. of Mississippi, Hattiesburg, Mississippi.
16. Natural Gas Co., Inc., Monroe, Louisiana
17. Georgia Public Utilities, Rome, Georgia.
18. Malden & Melrose Gas Co., Reading, Massachusetts office.
19. Westchester Lighting Co., Mt. Kisco, N. Y. office.
20. Brooklyn Union Gas Co., Flatbush Branch, Brooklyn, N. Y.

Mid-West Regional Program Rapidly Taking Shape

DETAILS of the program of the Eighth Mid-West Regional Gas Sales Conference, which will take place at the Hotel Sherman, Chicago, Illinois, February 15 and 16, are rapidly taking shape, according to announcement made by E. J. Boyer, Minneapolis Gas Light Company, Minneapolis, Minn., Chairman.

The following subjects have been listed for presentation by qualified speakers: "Sales Plans," "Electric Cooking Competition," "Cooperative Gas Range Campaigns," "Kitchen Planning for Greater Sales," "Developing the Below-Average Customer," "Water Heating Sales through Upstairs Controls," "Gas Refrigeration Today," "Forced Air Heating with Gas," "Space Heating—a Neglected Load Builder," "Selling Heating in the Chicago Area."

The following speakers have been invited to take part in the program:

J. J. McKearin, Lowell Gas Light Company, Lowell, Mass.; Bernard T. Franck, American Light & Traction Company, Chicago; N. E. Loomis, Detroit City Gas Company, Detroit, Michigan; Stanley Little, American Stove Company, St. Louis, Mo.; W. E. Derwent, George D. Roper Corporation, Rockford, Ill.; Albert G. Schroeder, Grand Rapids Gas Light Company, Grand Rapids, Mich.; Stanley Taber, Iowa-Nebraska Light and Power Company, Lincoln, Neb.; Walter Weitz, Northern States Power Company, St. Paul, Minn.; Henry K. Dropp, Milwaukee Gas Light Company, Milwaukee, Wis.; Alan Davey, Wisconsin Public Service Corp., Oshkosh, Wis.; E. A. Jones, L. J. Mueller Furnace Company, Milwaukee, Wis.; F. M. Rosenkrans, Gas Service Company, Kansas City, Mo.; Joseph McKinley, Equitable Gas Co., Pittsburgh, Pa.; W. R. Evans, The Peoples Gas Light & Coke Company, Chicago.

Members of the Mid-West Sales Council are as follows:

E. J. Boyer, chairman, Minneapolis Gas Light Co., Minneapolis, Minn.; W. L. Jones, vice-chairman, St. Louis County Gas Co., Webster Groves, Mo.; J. T. Busch, Illinois Power & Light Corp., Chicago, Ill.; Henry K. Dropp, Milwaukee Gas Light Co., Milwaukee, Wis.; W. R. Evans, The Peoples Gas Light & Coke Co., Chicago, Ill.; E. R. Felber, Madison Gas & Electric Co., Madison, Wis.; E. H. Frazier, Jr., Battle Creek Gas Co., Battle Creek, Mich.; Stanley Jenks, Northern Indiana Public Service Co., Hammond, Ind.; C. A. Luther, The Peoples Gas Light & Coke Co., Chicago, Ill.; F. X. Mettenet, Public Service Co. of Indiana, Indianapolis, Ind.; W. F. Miller, Public Service Co. of Northern Illinois,

(Continued on page 33)

HOME SERVICE COMMITTEE

DOROTHY E. SHANK, Chairman JESSIE McQUEEN, Secretary

Radio Cooking School in Dallas Proves Success

Albertine Berry

A RADIO Cooking School in Dallas Gas Company, Dallas, Texas, has been considered among successful endeavors in the home service field and following the first school of two months' duration in the early summer, a second series was begun November 1. According to Miss Margaret Marable of the Advertising Department.

The "Blue Blaze Brevities," a fifteen-minute program of music and romantic facts from history and fiction, is the new radio program of the Dallas Company which immediately precedes the Cooking School of the Air conducted by Miss Albertine Berry, home service director. Both programs are broadcast direct from the auditorium of the gas company in Dallas and are attended by an audience. The program, given each Tuesday morning at 10:30 o'clock over Station WFAA, was designed as a drawing card to swell attendance at the Cooking School and insures the Cooking School a good place on the air by having it follow a program of entertainment.

For a theme introducing and closing the program, the familiar "Turn on the Heat" is used. The orchestra plays four numbers, with a feature artist singing two numbers. The romantic background of modern foods, fashions, and social customs is presented in dramatic stories or amusing dialogue with "Captain Blazer" being the central figure.

Listeners are offered the recipes used during the Cooking School of the Air, which immediately follows the "Brevities," and requests for them have been gratifying. These are mimeographed sheets which are also distributed to those who attend the school in person. Requests for entertainments and menus for various kinds of parties are the most frequent. The record-breaker was a sheet of recipes called "On the Right Bank of the Rio Grande"—a number of Mexican dishes and suggestions for a chili party.

The first Cooking School of the Air conducted by Miss Berry was held during May and June. During the hot months, the broadcasts and demonstrations from the auditorium were discontinued, and a fifteen-minute program, beginning at 10:30 was broadcast from the studio of WFAA instead. These programs, on Tuesday and Thursday morning, were written as interviews between the home service director and a customer. In order to give the programs life, many of the dialogues were written to take place in the customer's home where her conversation with Miss Berry would be interrupted by the telephone ringing, by neighbors calling from the back porch, or by the vegetable man at the door. Of course the subjects discussed were gas equipment, kitchen equipment, and food news generally. On each broadcast, about three recipes were given, with the customer repeating each ingredient and all the method as if it were being written down. This is an excellent way to allow the listeners time to write down the recipes without tiresome repetition.

One particularly interesting feature of the demonstration from the stage in the regular Cooking School classes is the model kitchen, which is constructed in the manner of stage scenery. It was necessary to build a kitchen set for the stage, rather than to equip it as a permanent kitchen display, since the auditorium is open for the public and the stage is often used for amateur dramatics. The kitchen set can be moved into place and hooked together in five minutes, due to expert planning and construction.

The set itself is done in cream, orange and black, in ultra-modern manner. The air-cooled Electrolux and the clock-control, insulated gas range—different models are used from time to time—fit into specially built recesses and are highlighted from above by indirect lighting system. The set is a replica of one displayed by the gas company in a turntable booth at the State Fair showing the evolution of the kitchen from 1893 to 1933.

Committee Outlines Activities for the New Year

Dorothy Shank

THE first meeting of the Home Service Committee for 1933-34, whose chairman is Dorothy Shank, of the American Stove Company, was held at A. G. A. Headquarters in New York, December 8. Those in attendance were as follows:

Ruth Feeney, Boston Consolidated Gas Company, Boston, Mass.; Agnes Gleason, American Gas Journal, New York, N. Y.; Charlotte Hood, Gas Age-Record, New York, N. Y.; Ruth Kleinmaier, Central Hudson Gas & Electric Corporation, Poughkeepsie, N. Y.; H. H. Koelbel, Consumers Power Company, Jackson, Mich.; Ruth Kruger, Bronx Gas & Electric Co., New York, N. Y.; R. A. Malony, Philadelphia Gas Works Company, Philadelphia, Pa.; Margaret Nevins, Syracuse Lighting Company, Syracuse, N. Y.; Mrs. Cornelia Newton, New Haven Gas Light Company, New Haven, Conn.; Jane Roberts, Roberts & Mander Stove Co., Philadelphia, Pa.; Dorothy Shank, American Stove Co., Cleveland, Ohio; Mrs. Lois Shelton, Virginia Electric & Power Company, Norfolk, Va.; Elizabeth Sweeney, Empire Gas & Electric Company, Geneva, N. Y.; Beatrice Wagner, Philadelphia Gas Works Company, Philadelphia, Pa.; Jane Tiffany, Electrolux Refrigerator Sales, Inc., New York, N. Y.; F. R. Wright, A. G. A. Laboratory, Cleveland, Ohio., and Jessie McQueen, American Gas Association, New York, N. Y.

The plan of work for the year contemplates a questionnaire to be submitted to home service directors concerning their operation and activities. A similar questionnaire was sent out four years ago. A service for magazines and newspapers is planned, while the dissemination of information on kitchen planning to home service departments, in cooperation with the kitchen planning committee, also is among the scope of the year's proposed activities.

Assembly of suggested courses in gas equipment for use in colleges; suggested lists of studies for students planning to go into home service work, and sample demonstrations for high school and public school work on gas equipment are among other subjects on which the committee expects to act.

Other phases of work that were considered are: Representation of home service at regional meetings; research to home service departments from the A.G.A. Laboratory, home economics abstracts, and gas vs. electricity and oil; a suggested plan for home service departments to consider in trade dealer cooperation; and a project for further cooperation in selling gas appliances.

Gasettes

GOOD HOUSEKEEPING INSTITUTE ENTERTAINS—The home service directors in the New York area were guests of Katharine Fisher, director of Good Housekeeping Institute, and her staff, at a luncheon meeting at the Institute on December 7. Following the luncheon, the guests were shown through the Institute, getting firsthand information on the interesting testing work that is being done by this magazine.

CLASSES IN FRENCH—The Central Maine Power Company, because of the large French population in Augusta, Maine, has felt the need of carrying on its home service demonstrations in French, so as to actually meet the needs of the community. A Frenchwoman was employed for this purpose. The company's French representative, whom these people count on as their official contact between them and the gas company, carried the message around with him as he read the meters, and attended to his various duties. To keep the classes wholly within the idea of the plan, a hall was secured within the French community. In other words, their school was carried to them in their tongue, and in their way. Each night the hall was crowded to its capacity, and the husbands came along with their wives.

CANNING PROJECT—Zella Patterson, director of home service in the Wisconsin Public Service Corporation, reports a successful canning contest held throughout its properties this summer. The campaign was sponsored by local newspapers with the cooperation of a sugar beet factory, a large grocery concern and the Wisconsin Public Service Corporation. The contest closed with a total of 4,575 jars of canned tomatoes, conserves, pickles and fruits and other vegetables. The jars were brought to the utility company office and were given attractive window displays, after which they were distributed to local charities.

ONE HUNDRED PER CENT ATTENDANCE—Mrs. Ella Liner Lambert, of the Milwaukee Gas Light Company, furnishes a "Believe It or Not" story. She states that in their just-completed fall series of classes, the evening class broke all records for attendance. Five hundred and twenty-five were enrolled in this class, and over a period of ten lessons the average attendance was 524.9.

FACTS AND FIGURES ON CANNING—With the canning season complete for one year, home service departments are already planning their campaigns for the work of next spring and summer. Elizabeth Sweeney, director of home service in the Empire State Gas & Electric properties in New York, reports some interesting research in her departments. "For some time we have been advocating oven canning," she said. "We have taught our customers that it is a very convenient, safe and economical way to can. So far we have considered it only from the consumers' viewpoint. We were then interested to know what benefits the company derives from it. In developing the subject, we used a gas range and canned nine pints of tomatoes and nine pints of peaches, measuring the gas used for every process. The following summary shows the results obtained: If ten housewives canned a bushel of peaches and a bushel of tomatoes each, it would mean a revenue of $3.75 to the company. If 500 housewives canned one oven full of peaches each, it would mean a revenue of $19.50 to the company. If each one of our gas consumers in the Auburn territory canned one oven full of peaches it would mean an increased revenue of $312.87 to the company."

SCHOOL INSTALLMENTS—Claribel Adams, of the Washtenaw Gas Company, Ann Arbor, Michigan, gave Christmas cookie demonstrations in the city schools for both parent-teacher groups and children. This was a follow-up of the placement of modern gas ranges and controlled baking ovens in all the schools teaching home economics in Ann Arbor.

A Portable Display

At the recent Industrial Exposition held in Washington, D. C., the above display of the Washington Gas Light Company attracted much attention and favorable comment. An unusual feature of this display is that it was built in sections and may be taken down and set up at various exhibits at will. It was constructed by the Sugi Wood Corp.

INDUSTRIAL GAS SECTION

F. B. JONES, Chairman C. W. BERGHORN, Secretary J. F. QUINN, Vice-Chairman

Find Gas Exhibits Pay Dividends

THE Gas Industry Exhibit at the National Metal Exposition in Detroit, October 2-6, 1933, was commented on by various manufacturers who displayed their equipment.

One manufacturer of a varied line of industrial gas equipment said he "made several very valuable contacts which, for our line of business, is the most we can expect. However, we have reason to feel confident that some of these contacts will result in actual orders."

Another manufacturer of control equipment gave much the same reaction, stating "wherein we made no direct sales, we were in contact with numerous people who I am sure will purchase our equipment in the future. We believe that operating equipment brings out the advantages derived from burning gas much better than circulars or advertising, as in mechanical equipment it is extremely hard to explain in a letter or circular the important advantages of a piece of equipment and at the same time show the mechanical construction in such a way that it will be understood by the purchaser."

One large manufacturer stated that "results we have obtained from the National Metals Exposition at Detroit were gratifying and exceeded our expectations. Our total number of live prospects exceeded those obtained at Buffalo by a ratio of three to one. No direct sales were made, but with equipment such as ours, we have only succeeded in making actual sales at one or two Steel Treaters' Shows out of the seven at which we have exhibited."

An important industrial appliance company says "we regarded this year's exposition as much more satisfactory than the 1931 or 1932 exhibits because of the better attendance and the greater interest displayed in the exhibit. We obtained a number of inquiries concerning small equipment and a few rather good inquiries on larger equipment which we hope will develop favorably. One old customer of ours whom we had an opportunity to see while in Detroit ordered several machines immediately at the conclusion of the convention."

A manufacturer of a large line of industrial burners advised "this is the third time we have exhibited in the Steel Treaters' Show since and including 1931. We feel that the Detroit show was not only the largest but also the most profitable. We are pleased to say we did make a few minor sales through this exhibit. Furthermore, one of our Detroit distributors made a few sales both during the week of the convention and since. We have received a few prospects also. Incidentally, we just received a small order which the writer knows is the result of the Boston show two years ago."

A large furnace manufacturer said "in regard to our experience at the Steel Treaters' Convention in Detroit, it was the consensus of opinion of our men that the exhibition at Detroit was very much worthwhile. It is, of course, hard to evaluate the exhibits on equipment such as ours in terms of actual sales or live prospects. We do not know that we could say definitely we made any contacts that we did not previously have. At the same time it gives us the opportunity to sit down with each prospect, away from the interruptions of their office, and discuss problems more thoroughly than we could otherwise do."

One company making gas cutting equipment advised that "relative to the Metal Exposition held in Detroit, we are very much pleased with the results accomplished through this exposition. The display was very nicely handled; the ventilation and illumination were exceptionally well taken care of, and in our opinion this is one of the most successful expositions which we have ever attended. The results secured through our display have been beyond our expectations, both as to sales and inquiries."

A manufacturer of industrial furnaces and heaters "received no direct orders at the exhibit, but it did give three orders received consecutively ten days and two weeks thereafter the necessary momentum required through the exhibit medium. A great amount of new interest was created by our recent work in high temperatures referred to in the exhibit and will be reflected in the use of gas for high temperatures in great quantities where oil has been heretofor almost exclusively used."

Another manufacturer of an extensive line of industrial gas equipment said "this exhibit gave to our company the opportunity to exhibit to the metal industry in general a new soft metal furnace particularly adapted to the melting of stereotype metal, the first of its kind ever to be designed for gas fuel. It was more than gratifying to see the number of people who took advantage of the opportunity to view these furnaces in actual operation. We did not actually close any orders at the exhibition, but have since received some orders from concerns in the vicinity of Detroit, which we can trace directly to this exhibit."

E. N. Strait Named Chairman Rate Structure Committee

E. N. STRAIT, of Chicago, manager of the rate department and member of the Operating Committee of the Byllesby Engineering and Management Corporation, has accepted the chairmanship of the Rate Structure Committee of the American Gas Association.

Graduating from the University of Wisconsin, in 1906, Mr. Strait engaged in testing equipment and in 1907 became a member of the staff of the Railroad Commission of Wisconsin. He served with the commission for ten years, during which time he was connected with the engineering department, engaged in valuation of public utilities, development of standards of gas and electric service and inspection of service; an investigator of operating results and rates of various utilities, and in 1916 was made chief statistician of the utilities division of the commission in charge of statistics and rates.

Joining the Byllesby organization in 1916, Mr. Strait organized a department of rates, contracts and operating results in charge of rate work for the properties comprising the Standard Gas and Electric Company group. This led to his present position as manager of the rate department and member of the Operating Committee.

The Association's Rate Structure Committee studies all phases of rate making for the gas industry. With a membership comprising leading rate experts, the Committee has consistently issued reports of great value to the industry.

An example of the committee's effective work in a sphere deemed to be vital to the progress of the industry is its report for last year, under the chairmanship of H. D. Hancock.

In this report, the Committee describes the present status of the rate situation, presents a study of the all-important domestic gas rate, makes an analysis of thermal gas rates, which, with the 1931 report on the same subject, gives the complete history both in England and the United States of this form of rate, together with the extent and results of its use in this country; incorporates an interesting study of the effect of change in rate form, and gives a comprehensive review of the previous reports of the Committee summarizing principles enunciated and recommended in rate making.

MANUFACTURERS' SECTION

JOHN A. FRY, Chairman J. SCOTT FOWLER, Vice-Chairman C. W. BERGHORN, Secretary MERRILL N. DAVIS, Vice-Chairman

Gas Exhibit at Hotel Show Attracts Thousands of Visitors

THE eighteenth National Hotel Show, held last November, at the Grand Central Palace, New York City, was not the largest on record. But in the eye of the gas industry, it will remain as certainly the most brilliant and effective.

Cooperating organizations—the American Gas Association, the Detroit-Michigan Stove Company, the Standard Gas Equipment Corportion, the Majestic Manufacturing Company, the G. S. Blodgett Company, the Murphy Company and the Consolidated Gas Company of New York—combined their exhibits under an effective black and gold panorama designed by Ray Martin, display manager of the Consolidated Gas Company. Attracted by the size, color and layout scheme of the exhibit, large crowds thronged the spot every day of the show.

"Modern Gas Service Gives You Better Appliances; Greater Economy; Improved Operation" was made the omega of the entire plant, and everything in the layout, from insulation and heat control to the Homestead grill, tended toward that end.

In the A. G. A. section, the Consolidated Gas Company set up a test between the old type of range, non-insulated and uncontrolled, and the modern, heat controlled, insulated oven. The ranges were set side-by-side, with thermometers recording inside and outside temperature of each range, and large dial, dry test meters showing the rate of consumption. The public awarded the efforts put into the building of this picture with unusual interest; the display effectively presented the story in which every user of equipment should be interested—that of lower operating costs, greater efficiency, more ease of operation, greater comfort.

The relative gas consumptions were 28 and 50 cu.ft. per hour when the ovens were set at 500° F. inside, showing a saving of 44 per cent in favor of the modern range oven. The outside temperature of the insulated range was over 100° F. cooler than its predecessor, the temperature readings—with the ovens at 500°—having been:

Insulated	150°
Non-insulated	280° (aver.)

One particular feature the demonstrators took great delight in pointing out. That was the even temperature curve of the insulated and controlled oven. Even with a recording thermometer to guide him, the engineer in charge found it difficult to maintain an even curve for the non-insulated, manually controlled oven.

Test between old and new type ranges which aroused unusual interest at Gas Exhibit at Hotel Show

New features of the show were a small toaster, toasting bread on both sides, and having a capacity of 240 slices an hour; a small counter-type fryer with an 8 in. pot; and the new Surface Combustion Broiler with each burner controlled, all shown by the Standard Gas Equipment Corporation. The G. S. Blodgett Company displayed its improved 700 series of Blodgett oven.

The Majestic Manufacturing Company displayed a cut-out range section which demonstrated visually, by means of ribbons, the heat travel around the oven.

There were two important gas exhibits outside the main display. One was that of the Savory Company, showing a complete list of toasters, small broilers, their new frankfurter roll toaster, and a new muffin and roll toaster. The other was the first showing in New York of the new Norge Broilator. Both of these exhibits were excellently attended.

And in conformity with a fine old custom, gas men travelled from the far spaces around the Great Lakes, from the North and East to visit the show.

The only way to climb the hill of success is hand in hand. Without unity we get in each other's way. The reason for having rules in a business is the same as the reason for having discipline in an army. It is to keep us all from interfering with each other."—DR. FRANK CRANE.

TECHNICAL SECTION

O. S. HAGERMAN, Chairman H. W. HARTMAN, Secretary C. A. HARRISON, Vice-Chairman

Section Committees Organize in Cleveland

WELL-ATTENDED meetings of the Managing Committee, Distribution Committee, Gas Production Committee and the Chemical Committee of the Technical Section were held at the Cleveland Hotel, Cleveland, Ohio, December 9, 1933. The following subjects were discussed for inclusion in the programs of the various operating committees.

Gas Production Committee

1. Review of liquid and dry oxide purification with particular reference to economics of operation under present conditions and utilization of NH_3 as an alkali.

2. A study of the developments in the following gas plant apparatus.
   (a) Wear resisting material
   (b) Coke chute design
   (c) Coke screen design
   (d) Welding
   (e) Chute lining materials

3. Use of Waste Heat and Waste Heat Economizers.

4. Preparation of a Bibliography of Oil Gas Process.

5. Cleaning of producer gas by Cottrell Precipitators.

6. Study of relation of coke oven operation to NO products in gas.

(This latter subject will probably be handled through a joint presentation with the Chemical Committee at the Joint Committee Conference of the Production and Chemical Committees.)

Most of the above activities will be handled by the Main Production Committee through sponsorships assigned to individual members.

The Subcommittee on By-Products will include for consideration in its program the following subjects:

1. More suitable and economical material for dust treating coke.

2. Naphthalene scrubbers—Are they necessary?

3. Light oil stripping—Does it pay?

Among the activities proposed for the Subcommittee on Water Gas were:

1. Dehydration and disposal of heavy oil tar.

2. Reformed natural gas.

3. High B.t.u. gas as a stand-by.

4. Producer gas from natural gas.

5. Nut coke, anthracite coal and bituminous coal as generator fuels.

6. Use of refinery oil gas as an enricher.

7. Use of heavy oil and treatment of heavy oil tar.

Among the activities proposed for the Carbonization and Coke Committee were:

1. Study of problems arising from picking up carbonization equipment which has been partially or completely shut down.

2. Use of fine coke screenings in producer and coal mixtures.

For the Builders' Section of the committee, there was assigned, in addition to the regular activity of reporting on new Production equipment, a request for information on new light oil stripping plants.

At the joint-meeting of the Production and Chemical Committees, it was decided to hold a joint committee conference of the Production and Chemical Committees in New York City, May 21 and 22, 1934. Representatives of both committees were appointed on a Joint Program Committee to prepare subjects for discussion at this meeting. As has been usual, in the past, the Conference will be composed of four sessions, at two of which there will be subjects of joint interest to the two committees. The other two sessions will be devoted exclusively to topics of direct interest to individual committees.

Distribution Committee

The committee unanimously selected Detroit, Michigan, as the place of the 1934 Distribution Conference which will be held on April 9 and 10, 1934. H. W. Battin, chairman of the committee, presented for discussion the subjects selected to date on the program, all of which were based on keynote of economies possible in the various distribution departments. It was pointed out while the keynote was economy that such economies were to be achieved without sacrifice to the Section in service to the consumer. The committee not only approved the subjects selected to date but, in order to give the proper amount of attention to those considered, will show, a tentative program so that the members will know, in advance of the conference, the subjects to be discussed. The following members of the committee were appointed to sponsor the subjects listed:

F. A. Lydecker, "Servicing Appliances"; F. M. Goodwin, "Portable Equipment and Accessories"; J. H. Braine, "Operating Records, Methods and Routines"; E. A. Clark, "Regulators and Pressure Regulations," and D. P. Hartson, "Unaccounted-for Gas."

The chairman explained that such sponsorship would require that the committee member keep in touch with developments throughout the year advising the chairman of any action necessary, either in the form of an article for the MONTHLY, a paper at the conference or convention or the formation of a subcommittee on the subject.

The chairman advised that the Executive Board has approved an appropriation of $4,000 to continue the research work conducted by the A. G. A. Research Associate, Dr. Scott Ewing, at the Bureau of Standards. The research work is primarily devoted to the development of exact information on the value of pipe coatings designed to reduce corrosion. A complete program for the year was presented by Mr. Boyd, chairman of the subcommittee having this research in charge. It was pointed out that the chief activity for the Subcommittee on Pipe Joints would be the final approval of the A. G. A. Requirements for Testing Mechanical Joints for Cast Iron Pipe and Bell Joint Clamps. Copies of these requirements have been submitted to all committee members concerned in the Technical Section as well as to all company members, requesting that comments and criticisms on the Test Requirements be sent to Headquarters.

Mr. East, chairman of the Subcommittee on Meters, reported that his committee was in process of organization and that a successful program of proposed activities would be presented at an organization meeting of the committee shortly.

Chemical Committee

One of the principal topics before the Chemical Committee is the contemplated revision of the "Gas Chemists' Handbook." However, instead of printing the revised edition in a large book form, the Subcommittee on Revision of the "Gas Chemists' Handbook" is planning to publish a series of pamphlets, each pamphlet to be devoted to a particular subject, selecting the most important subjects at the present time for prior publication. The first pamphlet in the proposed series will be devoted entirely to the analysis of various gases and it is hoped to include in this pamphlet much more interpretative material than in the former handbook. From present indications, the committee in charge feels that the pamphlet will be ready for publication at the end of the present fiscal year.

Other subjects and topics to be included in the program are:

The Gum Problem:

This activity will be coordinated with the Production Committee and probably take the form of the symposium at the Joint Committee Conference of the Production and Chemical Committees.

Refinery and Liquefied Petroleum Gases:

An attempt will be made to bring this subject up-to-date and to have it more readily available to members of the Association.

The Dust Problem:

It was pointed out that this had not only a chemical but a production and a distribution aspect. The Chemical Committee will continue to collect data on the origin of dust, methods of analysis, and methods of elimination.

Meter Diaphragm Deterioration:

The committee plans to continue the research work which it has conducted on this subject and L. M. Van Der Pyl of Pittsburgh Equitable Meter Company, Pittsburgh, Pennsylvania, will continue to direct this research.

Fogging of Gas:

The Chemical Committee will coordinate with other committees on its study of this problem but will concentrate particularly on quality of oils best suited for fogging. Use of gum inhibitors along with oil fogging will also be considered.

For the Subcommittee on New Developments, S. S. Tomkins, of the Consolidated Gas Company of New York, was appointed as chairman and a program of subjects to be taken up will be considered including some of the subjects already discussed and assigned to the General Committee.

J. F. Anthes was appointed chairman of the Subcommittee on Revision of the "Gas Chemists' Handbook."

Managing Committee

At the Managing Committee meeting, the various committee subjects discussed above under the individual committees were thoroughly discussed and individual committee chairmen instructed to coordinate those activities which were closely related.

In connection with the Distribution Conference and Joint Committee Conference of the Production and Chemical Committee, it was decided to retain the same policy as last year, limiting both conferences to two days and reducing to a minimum all the expense to those attending.

In order to get ample technical material for publication in the MONTHLY the following committee was appointed: C. A. Harrison, vice-chairman of the Managing Committee, chairman; Erick Larson, vice-chairman, Distribution Committee; K. B. Nagler, vice-chairman, Gas Production Committee, and S. S. Tomkins, vice-chairman, Chemical Committee.

Mr. Hagerman, chairman of the Section, pointed out that each one of the main committee chairmen had the benefit during the meeting of the Managing Committee of the discussion of such of the proposed activities that seemed to require coordination with other committees of the Section. He also requested committee chairmen to maintain this coordination throughout the year so as to prevent any possible duplication of activities.

Among the members present at the various committee meetings were the following:

J. F. Anthes, chairman, Subcommittee on Analysis & Tests; H. W. Battin, chairman, Distribution Committee; G. H. Boyd, chairman, Subcommittee Pipe Coatings and Corrosion; R. A. Carter; E. A. Clark; R. M. Conner, director, A. G. A. Testing Laboratory; L. H. East, chairman, Subcommittee on Meters; L. J. Eck; H. H. Ferris, representing J. A. Clark; F. M. Goodwin; O. S. Hagerman, chairman, Managing Committee; C. A. Harrison, vice-chairman, Managing Committee; D. P. Hartson; T. B. Hopper; W. L. Jordan, representing W. H. Fulweiler; R. M. Kellog; K. R. Knapp; Erick Larson, vice-chairman, Distribution Committee; C. R. Locke; G. E. Ludwig; F. A. Lydecker; E. D. Maurer; T. L. Mellick; M. I. Mix; E. A. Munyan; E. J. Murphy; K. B. Nagler, vice-chairman, Gas Production Committee; J. A. Perry, chairman, Nominating Committee; F. J. Pfluke, chairman, Carbonization Subcommittee; E. F. Pohlmann, chairman, Chemical Committee; J. V. Postles, chairman, Production Committee; A. R. Powell, representing Fred Denig; C. A. Schlegel; L. Shnidman; Geo. Smith, representing C. H. B. Chapin; A. I. Snyder; S. S. Tomkins, vice-chairman, Chemical Committee; C. F. Turner, vice-chairman, Subcommittee on Pipe Coatings and Corrosion; L. M. Van Der Pyl; C. H. Waring, chairman, Subcommittee on Pipe Joints; F. C. Weber; L. J. Willien, and H. B. Young, chairman, Water Gas Subcommittee.

W. F. Wright Named Manager Dallas Gas Company

Wesley F. Wright

EXECUTIVE personnel changes were announced January 1 by two of the largest distributing companies of the Lone Star Gas System. Wesley F. Wright, formerly general manager of the Fort Worth Division of the Lone Star Gas Company, was elected vice-president and operating manager of the Dallas Gas Company. He was succeeded in Fort Worth by F. L. Carmichall, formerly general superintendent of the Community Natural Gas Company, also a member of the Lone Star Gas System.

F. L. Carmichall

Mr. Wright was previously with the Dallas Gas Company, having come from Indiana in 1910 to join the company. He was superintendent of distribution when he left in 1929 to become general manager in Fort Worth. He succeeds R. G. Soper who was elected president and general manager of the Dallas concern following the death of the late Henry C. Morris. Mr. Wright will also be general manager of distribution in the Dallas-Fort Worth area.

Leaving the Graver Corporation of Chicago, Illinois, in 1925, Mr. Carmichall went to Texas and joined the Dallas Gas Company, a year later entering the engineering department of the Community Natural Gas Company. Participating in the construction of many of the community's 250 town plants, he was appointed general superintendent January 1, 1928.

Rise of Ex-Office Boys

"HE Used To Be Office Boy—and How —" is the title of a story by Eddie Torr in *The News-Meter,* employee magazine of San Diego Consolidated Gas and Electric Company, San Diego, Calif. The article tells of the rise to eminence in the company of twenty-six ex-office boys, foremost among whom is M. B. Fowler, vice-president and treasurer.

Of Mr. Fowler, the article says: "We begin with that gentleman, not only because he has risen the highest, not merely because he is the best known, but because in 1898 when he was an office boy Morton B. Fowler worked so much harder than any subsequent office boy that there's no comparison. His hours were from 4 A.M. to 6 P.M., with time out for a sandwich if he could find the time. He not only emptied wastebaskets, polished windows and porcelain floorsavers, but formed a one-man billing, investigation, collection, accounting, order and cashiering department. The first year he received $25 per month—which is how much per hour? His steady rise to a vice-presidency of the company is a success story in fullest measure."

The Development and Operation of Combination Compressor Trucks*

By E. H. Eacker

Boston Consolidated Gas Company

IT is my purpose in this paper to present the development and the operating experience of a piece of equipment which we have termed a combination truck. This piece of equipment has become a very valuable adjunct to our company in its operations. The equipment consists essentially of an ordinary motor truck with an air compressor mounted on it and driven by the truck engine. The principle of driving auxiliary equipment, including compressors from truck motors, is not new. It must not be assumed that our company desires the credit for suggesting the basic idea, although a great deal of time has been spent on the development of a unit suitable for utility company operations.

You are all very familiar with the growth in the use of portable air compressors. With the growth of our cities and towns and the increased amount of permanent paving, it was essential that some method of making openings be found that was faster and less expensive than the old hand method. In the case of gas companies, safety demanded that openings on leaks be made as rapidly as possible.

The first compressors were small. They were mounted on special trailer frames utilizing hard tires. These units had to be towed from job to job and inasmuch as the towing speed was limited to a very low figure, movements of the compressor took considerable time. Later the compressor sizes were increased and units were built for Skid mounting for installation on truck chassis.

Today utility companies are utilizing the skid-mounted unit on truck chassis almost entirely, the exception being the larger trailer mounted units which are used primarily for the heavier construction work. The popular size of portable unit is the 110 or 120 cubic foot machine, the latter size originally being the 110 foot machine but with somewhat increased speed. This size of unit weighs from 3,000 to 3,500 pounds, depending on the make of the unit. In addition to this weight there are the necessary air guns, hose and tools which must be carried. It is evident that a one and one half ton chassis is loaded to its capacity with this compressor equipment.

Utility companies require a mobile unit. The day-to-day work consists primarily of many small jobs. New services have to be laid under permanent paving either entirely or in part. Services have to be relaid. Leaks must be repaired and repaired promptly. To handle this class of work it is necessary to transport men with their tool cart, if a cart is used, supplies, and a compressor, to the job. Furthermore it is essential that the compressor and the gang arrive at a job at approximately the same time. Heretofore it has been necessary to provide a truck to move the men and their tools, to provide a compressor unit, and to provide for the delivery of the material. In the larger companies it is often possible to deliver material in advance. This is not always practicable however, especially in congested districts. Also, in larger companies it is the practice to have truck drivers call into their stations upon the completion of one job for further work rather than returning to the station. All of these things have caused duplication of equipment and a great deal of extra expense.

It should further be borne in mind that utilities operate twenty-four hours a day and 365 days a year. In the winter time compressors arrive cold at a job and considerable time must be consumed in warming them up. The cold weather further increases difficulties with respect to the radiator fluid. Compressors operate at relatively high cooling water temperature making it difficult to utilize the ordinary anti-freeze liquid. During night hours, whether emergency gangs are kept on duty or not, two drivers are required, one for the truck unit and one for the compressor unit.

Some years ago one of our superintendents suggested that a truck carrying a compressor driven from the truck engine, and with sufficient body room to transport tools, material, and men, would be very valuable and result in a considerable saving. About three years ago we began to seriously contemplate the use of such a piece of equipment. The requirements for such a unit were that the truck chassis should be of approximately one and one-half ton capacity; the compressor together with the power take-off should be relatively light in weight; if possible the compressor should be air cooled, both to reduce weight and to eliminate the necessity for anti-freeze solution during winter months; the compressor and power take-off should not require but a small proportion of the total platform space; the drive, for economy and the elimination of trouble, should be preferably by means of endless V-Belts; the compressor should be of sufficient capacity to permit the operation of at least two paving breakers at rated pressure and without overtaxing the compressor unit; the power take-off should be so designed as to be applicable to practically all makes of trucks; the first cost of the installation should be lower than the cost of the standard skid-mounted compressor; and the control equipment should be simple.

One concern did have a drive of this nature but the unit was a water cooled unit. It was comparatively heavy, the power take-off was relatively light and the compressor capacity was the usual 110 to 120 cubic feet. Another compressor company had developed an air cooled unit and had mounted these units on different types of tractors. This unit because of its low weight and compactness seemed to be the unit we were looking for. About that same time this company requested that we test one of their trailer mounted units. The test was satisfactory and we took up the matter of combination truck units with this concern. This was the Davey Compressor Company. About the same time the American Coach and Body Company installed an air cooled compressor on a two ton Dodge truck. A special utility body together with electric line equipment was also installed and the unit was sent about the country for demonstration. This made a very excellent installation but did not exactly fit our requirements. One major objection to this unit was that the belts passed around the frame and therefore had to be of the split type. We believed that an endless belt would cause much less trouble. Furthermore we had a White truck chassis available which we wished to utilize. We, therefore, set to work to make a layout on this chassis to demonstrate the feasibility of such a unit. It was planned that the unit would act as a mother truck to supply gangs as well as small main gangs during the day shift and that it would take the place of a platform truck and compressor unit on the two night shifts. A supply of small fittings as well as service pipe had to be carried along with the tool equipment, which is usually carried in the trailer, and the compressor guns. The only power take-off available for the unit in question was a power dome, manufactured by the White Company. Although this was not exactly what we desired, it was installed and a utility body built up from an old platform body which was on hand. The tools, stock, compressor guns, compressor steel, gas masks, and lanterns were carried in boxes along each side of the truck. The compressor was mounted on the left hand side of the unit just back of the cab and the compressor tank on the right hand side in a similar location. The compressor decided upon was a six by six, two cylinder, single stage compressor, which, when operated at 725 R. P. M. had a displacement of 142 cubic feet free air per minute. This permitted running the compressor at a relatively low speed, but at the same time increased the normal air supply sufficiently to permit the operating of two paving breakers satisfactorily. The body layout left the middle portion of the truck available for carrying cast iron pipe, hose, dirt, patch material, etc.

The truck was placed in operation about thirteen months ago, as previously stated.

*Address before the Operating Division, New England Gas Association, Worcester, Mass., October 22, 1933.

It has been used during the day to move the small gangs, to supply these gangs with their stock, and to act as a compressor whenever required. To make this combination unit available for as many small jobs as possible a time limit of one hour per job was decided upon. If the job is to last more than one hour the operator or gang foreman calls the dispatcher for one of the regular compressor units. For night work the unit carries the necessary tools and equipment for any of the emergencies which might arise. When the unit was placed in service one platform truck and one compressor truck were eliminated. Some difficulty was experienced with the universal joints but this was corrected; the defect being in the manufacture of the joint. The power dome is of the gear type and is quite noisy, especially when the engine is idling. After six months of operation we decided to take the head off the compressor and examine the valves although no difficulty had been experienced. The valves were perfectly clean and the cylinders and pistons in excellent condition. After approximately eleven months it was necessary to replace one of the five belts. No other maintenance on the compressor has been necessary.

During the period of operation of this unit it became more evident that a split propeller shaft power take-off would be the most desirable type. The first cost of this type of take-off would be much less. It would be simple in design and it would be available for all makes of truck. The Davey Compressor Company engineered such a take-off designing it to permit the use of endless belts. Furthermore the arrangement of the compressor and air tank was improved upon, in that both the compressor and the tank were mounted on a moveable sub-base. This sub-base rested on two channel cross members. Where on the original unit the compressor and tank had been mounted out board on the truck, the new arrangement provided for the mounting back of the center of the cab.

In the spring of this year it was decided that another combination unit would be ordered for service in our High Pressure District. A special all steel utility body was designed having compartments on either side, an open space through the middle, a hose box back of the cab, and a Waldon canvas top. The chassis decided upon was an International model A3, one and one-half ton, with 160 inch wheel base. Even with this one and one-half ton unit, a relative heavy body and a normal dead load of stock and tools, there is adequate carrying capacity and space for carrying welding equipment, steel or cast iron pipe, road patching material, dirt, and a gang of men. As in the case of the first unit a platform truck and a compressor truck were replaced by this one unit. The principal characteristics of this unit are as follows:

1. The area required for compressor and air receiver 36 inches long by 41 inches wide, height 39 inches.

Two views of combination truck

2. Compressor capacity 142 cubic feet per minute.
3. Horse Power required 27.
4. Compressor R. P. M. 725.
5. Motor R. P. M. 1648.
6. Weight of compressor, power take-off, air receiver, cross channel and sliding base and accessories 968 pounds.
7. Total weight of second combination unit (including body and compressor) 7500 pounds.
8. Registered weight of second compressor unit 12,300 pounds.
9. Pay load 4800 pounds.
10. Total cost of complete unit $2,916.00.

Air delivery and gas consumption tests were made on both combination trucks as well as on our other standard compressors. The air efficiency tests were made in accordance with the specifications of the Compressed Air Society. The flow of air was calculated from the formula of Dr. J. A. Morse, of the General Electric Research Laboratory. These tests showed that the air cooled compressor compared favorably with the water cooled compressor. The gasoline consumption per cubic foot of air delivered was lowest in the case of the second combination unit. This may be attributed to the fact that the truck motor was operating at a very efficient R. P. M. An endurance test was also made by operating the second combination unit approximately five hours without unloading. During this test neither the motor nor the compressor overheated. Shortly after the second combination truck was placed in service a bearing failed in the power take-off. Upon examination it was found that grease had not worked into one section of the take-off, through holes which had been provided. An additional greasing plug was installed into this section and to date no further trouble has been encountered. The operation of these two units has been so satisfactory that we have proceeded with a third unit. This unit will replace the first unit in our downtown area and inasmuch as it will be in twenty-four hour service it was decided to completely enclose the body.

The economy in utilizing these combination units is evident from the fact that in each case two trucks and a compressor have been replaced by one truck chassis and one compressor mounted on it. The ordinary compressor trucks usually have very low mileage. The heaviest duty on the truck chassis is the carrying of the dead weight of the compressor. With the low mileage, the fixed charges on the compressor trucks make the cost per mile very high. Furthermore our test shows the operating cost of the standard compressor as being higher. The direct labor saving per year on units operating two shifts per day more than justifies the replacement of the conventional type of compressor, with the combination type of compressor. In addition to the direct labor saving there is a labor saving which is direct but which is not so easily determined. This results from getting the compressor on the job at the same time that the men arrive. There is no lost motion. As soon as the truck arrives on work that requires the use of the compressor some

(Continued on page 33)

Monthly Summary of Gas Company Statistics

FOR MONTH OF OCTOBER, 1933

Issued December, 1933, by the Statistical Department of the American Gas Association
420 Lexington Avenue, New York, N. Y.

PAUL RYAN, Statistician

COMPARATIVE DATA ON THE MANUFACTURED AND NATURAL GAS INDUSTRY FOR THE MONTH OF OCTOBER

	Month of October			Ten Months Ending October 31		
	1933	1932	Per cent Change	1933	1932	Per cent Change
Customers						
Domestic (Including House Heating)	14,520,800	14,659,800	— 0.9			
Industrial and Commercial	936,400	951,800	— 1.6	*See October*		
Total	15,457,200	15,611,600	— 1.0			
Revenue (Dollars)						
Domestic (Including House Heating)	37,602,800	39,850,900	— 5.6	406,570,000	439,019,500	— 7.4
Industrial and Commercial	15,641,100	14,879,200	+ 5.1	153,732,500	158,770,800	— 3.2
Total	53,243,900	54,730,100	— 2.7	560,302,500	597,790,300	— 6.3

COMPARATIVE DATA ON THE MANUFACTURED GAS INDUSTRY FOR THE MONTH OF OCTOBER

Customers						
Domestic	9,456,900	9,605,500	— 1.5			
House Heating	70,700	58,200	+21.5			
Industrial and Commercial	483,900	486,700	— 0.6	*See October*		
Miscellaneous	8,300	8,200	—			
Total	10,019,800	10,158,600	— 1.4			
Gas Sales (MCF)						
Domestic	21,586,200	22,990,000	— 6.1	206,809,100	224,302,000	— 7.8
House Heating	962,100	794,200	+21.1	16,177,900	16,366,400	— 1.2
Industrial and Commercial	6,882,000	6,371,600	+ 8.0	67,355,700	67,901,800	— 0.8
Miscellaneous	161,800	179,200	—	1,517,500	1,628,000	—
Total	29,592,100	30,335,000	— 2.4	291,860,200	310,198,200	— 5.9
Revenue (Dollars)						
Domestic	25,736,100	27,611,500	— 6.8	247,199,400	270,654,300	— 8.7
House Heating	661,300	632,200	+ 4.6	11,172,000	12,294,700	— 9.1
Industrial and Commercial	5,522,400	5,649,700	— 2.3	55,650,200	60,504,800	— 8.0
Miscellaneous	108,400	117,200	—	1,085,800	1,140,000	—
Total	32,028,200	34,010,600	— 5.8	315,107,400	344,593,800	— 8.6

COMPARATIVE DATA ON THE NATURAL GAS INDUSTRY FOR THE MONTH OF OCTOBER

Customers						
Domestic (Including House Heating)	4,993,200	4,996,100	— 0.1			
Commercial	423,300	435,900	— 2.9			
Industrial	14,600	14,600	0.0	*See October*		
Main Line Industrial	4,500	4,700	— 4.3			
Miscellaneous	1,800	1,700	—			
Total	5,437,400	5,453,000	— 0.3			
Gas Sales (MCF)						
Domestic (Including House Heating)	12,581,400	13,540,600	— 7.1	208,678,800	219,694,300	— 5.0
Commercial	4,680,100	5,300,800	—11.7	67,449,800	68,414,100	— 1.4
Industrial	37,176,200	31,578,600	+17.7	295,361,100	283,552,200	+ 4.2
Main Line Industrial	10,798,400	8,404,000	+28.5	103,116,400	88,624,800	+16.4
Miscellaneous	820,000	1,177,400	—	7,522,900	7,614,100	—
Total	66,056,100	60,001,400	+10.1	682,129,000	667,899,500	+ 2.1
Revenue (Dollars)						
Domestic (Including House Heating)	11,205,400	11,607,200	— 3.5	148,198,600	156,070,500	— 5.0
Commercial	2,350,500	2,509,500	— 6.3	30,928,500	32,133,700	— 3.8
Industrial	6,368,600	5,515,600	+15.5	53,906,700	53,657,500	+ 0.5
Main Line Industrial	1,163,400	938,800	+23.9	10,953,800	10,190,100	+ 7.5
Miscellaneous	127,800	148,400	—	1,207,500	1,144,700	—
Total	21,215,700	20,719,500	+ 2.4	245,195,100	253,196,500	— 3.2

Gas Revenues $560,302,500 for Ten Months

DURING the first ten months of 1933 revenues of manufactured and natural gas utilities declined 6 per cent, dropping from $597,790,300 in the first ten months of 1932 to $560,302,500 in the corresponding period of 1933.

The manufactured gas companies reported revenues of $315,107,400 for the first ten months, or 8.6 per cent less than for the same period of the preceding year, while revenues of the natural gas utilities aggregated $245,195,100, a decline of 3.2 per cent.

Sales of manufactured gas reported for the ten-month period totalled 291,860,200,000 cubic feet, a loss of 6 per cent, while natural gas sales were 682,129,000,000 cubic feet, an increase of 2 per cent over the corresponding period of the preceding year.

This decline in sales and revenue appeared to characterize practically all sections of the country served with manufactured gas. In regions served with natural gas, however, the decline in sales and revenues was relatively much less severe, owing to marked expansion in sales of gas for industrial uses.

In New York state, sales of natural gas for industrial uses increased 50 per cent during the first ten months of 1933, while in the states of Pennsylvania and Ohio the gain in this class of business was 16 per cent and 30 per cent respectively. Some states in the mid-continent area also reported pronounced gains, industrial sales of natural gas in Oklahoma gaining 27 per cent during the ten-month period.

A significant feature of the data reported by the manufactured gas companies was an increase during the year of nearly 22 per cent in the number of customers using gas for house heating purposes.

Have You Changed Your Address?

American Gas Association,
420 Lexington Avenue,
New York, N. Y.

Below is my new address:

Name .....

New Address.....

.....

Old Address.....

.....

Modern Melting In Newspaper Plants

There is a pronounced trend in newspaper publishing plants toward the use of immersion gas burners for melting stereotype and linotype metal, according to F. J. Rutledge, chairman of the American Gas Association Committee on Industrial Gas Research. The first installation of this kind, under the committee's supervision, five years ago, was made in the plant of the "New York World." Installations now being made are in newspaper plants ranging from the largest metropolitan dailies to country weeklies. In most instances they replace external firing—a relic of the methods used when coal was the fuel burned.

Dr. Arthur D. Little Honored on Birthday

DR. ARTHUR D. LITTLE, Cambridge, Mass., head of the chemical engineering firm that bears his name and a member of the American Gas Association, was honored by his staff upon his seventieth birthday, December 15. On behalf of his associates, Roger C. Griffin, director of tests and a member of the board, presented Dr. Little with a specially bound and inscribed volume of the Morse Collection of Japanese Potteries. Mr. Griffin is a son of Roger B. Griffin, Dr. Little's partner when the organization was formed as Griffin & Little, in 1886.

Development of Combination Trucks

(Continued from page 31)

of the men start this work immediately. This is possible not only due to the simultaneous arrival of the men and the compressor but also because the truck engine is hot and no warming up period is required. This is especially true in winter time. Added to the labor savings are the savings due to the reduced investment and the reduced operating costs.

Our units have been designed for special work and are equipped with special bodies. This is not essential as any kind of body can be used. The take-off and compressor can be mounted on any type of truck desired. Whereas the ordinary compressor truck can only be utilized to work as a compressor, the combination truck, with the type of body desired, can be utilized not only as a compressor but for other work as well when there is no work for the compressor unit. The demands on utility equipment are varied. Specialized equipment usually is objectionable in that it can be utilized for but one type of work. Furthermore on emergency work it is essential that our men and equipment arrive at the scene of the emergency as quickly as possible and proceed with the work at once. The combination truck although a specialized piece of equipment differs in that it can be used almost constantly, and it provides the means of giving prompt service to the public which we serve.

Mid-West Regional Program

(Continued from page 23)

Chicago, Ill.; C. A. Nash, United Light and Power Engineering & Construction Co., Davenport, Ia.; F. M. Rosenkrans, Gas Service Co., Kansas City, Mo.; A. E. Schwarz, Minnesota-Northern Power Co., Minneapolis, Minn.; and J. T. Schilling, Des Moines Gas Co., Des Moines, Ia.

British Find Entry Into U. S. "Thrilling"

(Continued from page 7)

to all traffic regulations, to the gas and electric plant of the Ford Motor Company. The police were real hustlers, and with shrieking sirens, which stopped or cleared all other traffic, our progress was triumphant, and accelerated to a degree that no member of our party had ever experienced in touring a busy city.

"The police headed us, encircled us, rushed by us at racing speeds, and we sat back in our comfortable seats and thoroughly enjoyed the 'thrill.' We certainly attracted attention. What citizen enjoying his Saturday evening in a well-lighted city could fail to take notice of such a cavalcade? Rumours of a 'gangster hold-up' would be prevalent for some time afterwards. I asked one of our American guides to provide me with a suitable word or words to express our feelings, confidently anticipating that some Americanism would provide the necessary 'punch' to our adventure. He failed miserably: 'dynamic Detroit' was one expression. * * * And to complete and 'round off' the programme, we were taken to the Statler Hotel, and in the wonderful ballroom received hospitality to which we did full justice. * * * Is it to be wondered at that few of the party really slept between Detroit and Chicago? Visions of hold-ups, six-shooters pressed into one's anatomy, wild scurrying through dark streets, citizens dodging racing motor-cars, red and green lights, all conspired to disturb our night's rest. But it was worth it all, and our reception at Detroit will forever be a well-treasured remembrance of our entry to the United States."

Gas Appliance and Equipment Developments

New Draft Control Unit

The Hotstream Heater Co., Cleveland, O., has developed the "Commercial and Industrial Type Draft-O-Stat," which is a new draft-control unit designed for use in large buildings. A catalog giving complete and concise technical information relative to this device is available and will be mailed upon request.

Trade-Marks in Russia

American manufacturers doing business in Russia should take steps to safeguard their trade-marks in the Soviet. The exclusive right to the proprietorship of a brand name in Russia may be acquired only by registration there. If this is not done, goods shipped to that country are refused admission owing to the registration of trade-marks elsewhere.

Report of Paint Test Ready

The Pittsburgh-Des Moines Steel Company has completed a test of paints and other coating materials for the inside surfaces of steel tanks for the storage of water. A full report is available in Technical Bulletin No. 3304, and may be had upon request to this company, which should be addressed at Neville Island Postoffice, Pittsburgh, Pa.

Licensed under Air Conditioning Patent

Lewis Air Conditioners, Inc., Minneapolis, Minnesota, have granted the Detroit Lubricator Company, Detroit, Michigan, license under a patent entitled "Air Conditioning Systems." This patent contains broad claims relating to any air conditioning system or circuit wherein a humidity regulator is rendered operative by a thermally actuated regulator only when the heating medium has attained a temperature adequate for efficiently evaporating moisture and/or otherwise conditioning the air. The patent in some of its claims further relates to any air-conditioning system where a fan is used for causing air to travel through air conditioning means and where the operation of the fan is controlled by the thermally actuated regulator and rendered operative only when the medium affecting the regulator has attained a predetermined temperature.

Designed to Stop Theft of Gas

The Sprague Meter Company, Bridgeport, Connecticut, is acting as selling agent for the X-Pander Pipe Line Safety System, manufactured by the Paul G. Wagner Company of Los Angeles, California. This product is designed to seal the gas line, at the time of meter shut-off, to prevent the theft of gas; also to stop leakage and the subsequent danger of explosion.

Contributions of news items by manufacturers of gas appliances and equipment to this department will be welcomed by The A. G. A. Monthly. On account of space limitations, all announcements of new products, improvements, etc., should be limited to about 100 words. No attempt will be made to describe each product or give details of construction. For such details address the manufacturer direct. Where justified, photographs will be used to illustrate these brief items. All contributions to this department should be addressed to C. W. Berghorn, Secretary, Manufacturers' Section, American Gas Association, 420 Lexington Ave., New York, N. Y.

Electrolux Research Moves to Indiana

Removal of Electrolux refrigerator laboratories and research activity from New York City to the Evansville, Indiana, manufacturing plant has been announced at the eastern headquarters.

Unibloc Diesel and Gas Engine Refrigeration Compressors

To meet the demand for compact engine-driven refrigeration compressors, Worthington Pump and Machinery Corporation, Harrison, N. J., has introduced a line of equipment designated as "Unibloc" Diesel and Gas Engine Compressors.

New FauceHot Representation

The Gas and Electric Heater Co., LaPorte, Indiana, and the Sonner Burner Co., Winfield, Kansas, announce the completion of an arrangement whereby the following Sonner Burner Co. men will also handle the sale of FauceHot and Gem Gas Water Heaters in their respective territories: E. A. Brown, 627 40th St., Des Moines, Iowa; K. D. Goodwin, Shurtleff Arms Apts., Lincoln, Nebraska; J. S. Stover, Box 252, Rochester, Minn.; C. W. Robbins, c/o Sonner Burner Co., Room 547, 122 So. Michigan Ave., Chicago, Ill.

Burnham-Simplex Boilers

The Burnham Boiler Corporation, Irvington, New York, has added to its heating line a new series of gas-fired boilers, manufactured at its Lancaster, Pa., plant and on display at branch offices. The Burnham-Simplex Gas Boiler is made in accordance with A. G. A. specifications and has been tested and approved by the Testing Laboratory at Cleveland. Louis Stotz, 23 Halsted Street, East Orange, N. J., has been appointed direct factory representative, and communications addressed to him or to the Irvington headquarters of the Burnham Boiler Corporation will receive prompt attention.

Oxweld Pipe Cutting Machine Introduced

Another new cutting machine has been announced by The Linde Air Products Company, 30 East 42nd Street, New York, as an addition to its Oxweld line of apparatus, known as the Oxweld Pipe-Cutting and Beveling Machine. It consists of a center rod with three spreading arms which press against the inner wall of the pipe, holding it in position, with an arm supporting a blowpipe that can be adjusted to the desired angle of the cut. The blowpipe and arm rotate without the use of a crank for quick centering of the device, and by means of a crank when doing actual cutting. This machine will take almost any hand-cutting blowpipe, is portable, and its operation is extremely simple. Once centered in the pipe, the operator merely turns a crank causing the blowpipe to rotate evenly around the pipe, making a clean machine-like cut.

Many States, Countries Represented

A selected list of registrants at the Hotel Show showed that 4,738 came from the following States and countries:

Alabama, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin.

Belgium, Bermuda, British West Indies, Canada, Cuba, Czecho-Slovakia, England, France, Germany, Holland, Porto Rico, Scotland, South Africa, South America.

At A. G. A. Headquarters the list of registrants is available to gas company members who desire to follow up. Address C. W. Berghorn, Secretary, Industrial Gas Section, American Gas Association, 420 Lexington Avenue, New York, N. Y.

Associations Affiliated with A. G. A.

Canadian Gas Association
Pres.—Donald G. Munroe, Montreal Coke & Mfg. Co., Montreal, Que.
Sec.-Tr.—G. W. Allen, 21 Astley Avenue, Toronto.

Empire State Gas and Electric Association
Pres.—Alfred H. Schoellkopf, Niagara Hudson Power Corp., Buffalo, N. Y.
Chairman, Gas Section—A. M. Beebee, Rochester Gas & Electric Corp., Rochester, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.

Illinois Public Utilities Association
Pres.—Bernard J. Mullaney, The Peoples Gas Light & Coke Company, Chicago, Ill.
Sec.—J. R. Blackhall, Suite 1213, 79 West Monroe St., Chicago, Ill.

Indiana Gas Association
Pres.—R. S. Brunner, Indiana Gas Utilities Co., Richmond, Ind.
Sec.-Tr.—P. A. McLeod, New Castle, Ind.

Michigan Gas Association
Pres.—Walter E. White, Commonwealth & Southern Corp., Jackson, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.

Maryland Utilities Association
Pres.—F. A. Mitchell, Eastern Shore Public Service Co., Salisbury, Md.
Sec.—D. E. Kinnear, 803 Court Square Bldg., Baltimore, Md.

Mid-West Gas Association
Pres.—R. L. Klar, Des Moines Gas Co., Des Moines, Iowa.
Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.

Missouri Association of Public Utilities
Pres.—Fred Karr, St. Joseph Gas Co., St. Joseph, Mo.
Sec.-Tr.—N. R. Beagle, Missouri Power & Light Co., Jefferson City, Mo.
Asst. Sec.—Jesse Blythe, 103 West High St., Jefferson City, Mo.

New England Gas Association
Pres.—H. R. Sterrett, New Haven Gas Light Co., New Haven, Conn.

Exec. Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.

Chairman, Operating Div.—P. R. Buchanan, Hartford Gas Co., Hartford, Conn.

Sec.-Tr., Operating Div.—D. R. Campbell, Portland Gas Light Co., Portland, Me.

Chairman, Sales Div.—H. B. Hall, Old Colony Gas Co., East Braintree, Mass.

Sec.-Tr., Sales Div.—R. J. Rutherford, Cambridge Gas Light Co., Cambridge, Mass.

Chairman, Industrial Div.—P. A. Nelles, Charles H. Tenney & Co., Boston, Mass.

Sec.-Tr., Industrial Div.—S. F. Morgan, New Bedford Gas & Edison Lt. Co., New Bedford, Mass.

Chairman, Accounting Div.—Leland Balch, Lowell Gas Light Co., Lowell, Mass.

Sec.-Tr., Accounting Div.—C. D. Perkins, Malden & Melrose Gas Light Co., Malden, Mass.

Chairman, Manufacturers Div.—C. H. Cummings, Industrial Appliance Co. of N. E., Boston, Mass.

Sec.-Tr., Manufacturers Div.—J. H. McPherson, James B. Clow & Sons, Boston, Mass.

New Jersey Gas Association
Pres.—F. A. Lydecker, Public Service Electric and Gas Co., Newark, N. J.

Sec.-Tr.—G. B. Webber, Public Service Electric and Gas Co., Newark, N. J.

Ohio Gas and Oil Men's Association
Pres.—L. K. Langdon, Union Gas & Electric Co., Cincinnati, Ohio.
Sec.-Tr.—Wm. H. Thompson, 811 First National Bank Bldg., Columbus, Ohio.

Oklahoma Utilities Association
Pres.—R. J. Benzel, Southwestern Bell Telephone Co., Oklahoma City, Okla.
Mgr.—E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—Geo. P. Egleston, H. R. Basford Co., San Francisco, Calif.
Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—A. J. Llewellyn, Luzerne County Gas & Electric Corp., Luzerne, Pa.
Sec.—Frank W. Lesley, Pennsylvania Gas & Electric Co., York, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—F. F. Schauer, Equitable Gas Co., Pittsburgh, Pa.
Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.

Southern Gas Association
Pres.—B. B. Ferguson, Portsmouth Gas Co., Portsmouth, Va.
Sec.-Tr.—S. L. Drumm, New Orleans Public Service Inc., New Orleans, La.

The Public Utilities Association of Virginia
Pres.—T. Justin Moore, Va. Elec. & Power Co., Richmond, Va.

Wisconsin Utilities Association
Pres.—R. G. Walter, Wisconsin Power & Light Co., Madison, Wis.
Exec. Sec.—J. N. Cadby, 135 West Wells St., Milwaukee, Wis.

16th Annual Convention and Exhibition
American Gas Association
◆
Atlantic City, N. J.
Week of
October 29, 1934

Personnel Service

SERVICES OFFERED

Services of experienced **appliance salesman** both through utilities and dealers, domestic and heavy duty, are offered. Wide acquaintance in the gas industry. Desire Eastern territory. Twenty-three years in the industry; fourteen years last position. Clean and successful sales record (38). Married. **797.**

Gas engineer, B.S. and M.S. in gas engineering; three years' experience in utility work. Desire position in engineering, operating or sales (25). Married. Will go anywhere. **798.**

Appliance salesman seeking a substantial connection. Eighteen years' experience traveling Eastern and Southern territories, contacting wholesale and retail trade, also utility companies. Ambitious and hard worker experienced and capable of taking complete charge of a territory and selling organization. Have no preference as to location. Married and in the early forties. **799.**

Air conditioning. Graduate mechanical engineer 1932 desires position in air conditioning or heating field. Two years' experience in air conditioning, heating and ventilating in office and field. Has done some research work on Silica Gel Air Conditioning Systems. Will go anywhere. Salary secondary. **800.**

Sales manager with "punch" and aggressiveness, tempered with judgment and diplomacy. Exceptionally broad experience selling gas and electric service and appliances, handling salesmen and specialists, costs, rates, franchises, advertising, publicity, commercial and public relations. Can "pep-up" your organization, introduce efficient methods, and quickly develop new business potentialities. **801.**

Reduced income of gas companies requires better and more intelligent plant control to help maintain dividends. Experienced **gas engineer** can bring to your organization or company that technical and practicable aid necessary to further reduce operating expenses to a minimum. **802.**

Executive, **salesman,** stoves, furnaces, boilers and radiation. Over twenty-five years' experience, all general office details—credits, collections, sales promotion, sales customers claims and traffic. Wide acquaintance among furniture, hardware and department store trade in Northern Ohio and Michigan. Also conducted warm air heating business on own account for several years. **803.**

Young engineering graduate with varied experience in design, manufacture, erection and operation of gas plant equipment, practical specialist in modern methods of **water gas** production engaged as supervisor of operation in plant of large city, desires similar employment in smaller community. Salary secondary. Married. **804.**

Technical graduate, 1931, single, specialized in gas and chemical engineering, with experience in several industrial concerns, also in testing **house heating** equipment; interested in development and experimental work, willing to go anywhere and to consider any position regardless of salary. **805.**

Gas engineer and manager, University graduate (45). Twenty-two years' experience in executive positions, including coal, oven and water gas, natural gas, high and low pressure distribution. **807.**

Gas engineer (34) technical graduate, several years broad experience with affiliated holding and operating companies in high and low pressure distribution, coal and water gas manufacture, natural and refinery gas, design and installation of distribution and transmission systems; specialist with excellent record of results in mitigation of unaccounted-for gas. **808.**

Young man with nine years' experience in **sales** and **engineering** work; seven years with one of the largest oil burner manufacturers, as assistant equipment manager and two years with manufacturer of gas industrial furnaces as an erection engineer. College graduate (M.E.). **809.**

SERVICES OFFERED

Executive **printer** with exceptional knowledge of every phase of the business. Thoroughly familiar with all forms of advertising, commercial printing and lithography. Capable of planning to procure your requirements most economically. Employing this man does not involve any expense as his remuneration would be offset many times by savings effected. **810.**

Manager. Thoroughly experienced in gas, natural gas and electric operation. Excellent record in New Business and in handling difficult properties. **812.**

Public relations (35). Thoroughly experienced in all phases of sales promotion, advertising and publicity; advertising agency training. Fourteen years' record available with highest credentials. U. S. government recognition for planning and advertising; available immediately. **813.**

Executive and **sales** position. Thoroughly experienced gas utilization engineer, industrial house heating and domestic, nine years' experience in new business operations. **815.**

Controller, executive assistant, general **accountant,** charge of finances; twenty years' experience general and cost accounting; preparation and administration of budget; control of departmental operations; interim and annual statements; charts, graphs; supervision accounting department, personnel, correspondence, collections, adjustments; office management; purchasing; unemployment due to liquidation of firm; salary moderate; (46) married. **816.**

Market analyst (33) has recently completed supervision of house heating survey for gas company in large mid-western city, while employed by well-known concern of marketing counsellors. A highly successful campaign was executed and domestic sales increased sharply on basis of house heating study. Background includes practical engineering and marketing experience in other basic industries. **817.**

As **superintendent** or **manager** of gas property by man having a number of years' experience in all branches of the gas business. Capable of taking charge of any plant, either coal, water or natural gas. **818.**

Executive **manager,** University man. Eighteen years' experience in the industry. Experience covers all phases of the business on coal, water and coke oven gas operations. Particularly successful with sales development on coke, house heating and refrigeration. Excellent public relations and employee personal record. Married. **819.**

Budget director; executive, engineering training, fifteen years' experience management gas and electric companies, qualified supervise preparation, operation, control of budgets. Practical background all branches gas and electric industry, understanding financial requirements, able to secure coordinated perspective for construction, operating and financial budgets. Can analyze costs, prepare explanatory reports on actual operations. **820.**

Manufactured and natural gas **manager,** graduate engineer (42) lately responsible charge widely spread group gas properties including acquisition and financing. Experience includes design, construction and operation in all details as well as commission valuation and rate making. Services should prove valuable asset to operating utility, investment bank or holding company. **821.**

Utilities **accountant-engineer;** twelve years' experience, uniform system of accounts, original cost valuation of land, structures and equipment in operating property, fixed capital analyses and records, depreciation and retirement reserve, financial and operating reports, cost accounting, rate investigations; graduate engineer (39). **822.**

Distribution engineer, technical graduate, married, six years' experience with manufactured and natural gas. Can survey, design, make extensions or modernize low and high pressure systems. A practical **operator,** can handle men, utilization problems, and installation of appliances. Position wanted as **superintendent** or staff assistant. **823.**

SERVICES OFFERED

Manufacturer's representative. Particularly desirous of carrying complete line of automatic gas-fired water heaters and tank heaters. Well known among gas companies, plumbing supply jobbers, plumbers and architects in New York City, Westchester County and Long Island, and has excellent contacts, having covered this trade for the past fourteen years. **824.**

Air conditioning specialist (35) married. Technical education; five years' successful sales record with world's largest manufacturer. Background of seven years' experience in gas industry as supervisor of industrial, commercial and house heating sales. Invites investigation and consideration of farsighted gas executives desirous of promoting residential air conditioning sales. **825.**

Combustion engineer with ten years' experience in plant fuel economy desires connection with utility or industrial concern. A thorough knowledge of and practice in fuel application to industrial operations. Six months foreign consulting. Chief consideration to effect fuel economy. Salary secondary to opportune connection. **826.**

Manufacturer's distributor: Gas ranges and appliances; New York and Eastern territory. Wide experience in sales, sales administration and manufacturing plus valuable contacts among utilities, leading department, furniture and house furnishing stores, stove jobbers and dealers, coupled with successful record, is advertisers' background. Strictly commission basis. Full particulars with Personnel Service. **827.**

Noise reduction and elimination of vibration are special problems for mechanical engineers. For the past two years I have been specializing in this work. Back of this lies eighteen years' practical engineering experience divided between gas and steel industries since graduating from Cornell University. Temporary or permanent engagement desired. **828.**

Sales-gas engineer desires utility operating connection or as manufacturers' sales representative; graduate engineer, twenty years' diversified experience, familiar with design, construction and operation of all gas equipment including holders from drafting board to erection; knows their maintenance and operation thoroughly. Exceptional sales record and unusually fine contacts with executives. **829.**

POSITIONS OPEN

Experienced **sales manager** for company serving southern city. Should know how to meet the public and be familiar with southern ways and conditions, with knowledge of up-to-date advertising and sales planning; one who can submit a proven and continuous record in selling or successfully directing a Sales Department of a gas company. Full information with respect to the foregoing should be furnished along with other essential details of personal and professional record. **0263.**

Gas appliance **salesmen** wanted. Those having utility sales experience preferred. We have an attractive proposition for men who can show a clean, successful record. Our product is outstanding in its field. Straight commission. No drawing account. Contracts for 1934 now being made. Desirable openings available in eastern and southern states. **0265.**

Gas appliance salesmen, with utility sales experience preferred and with sound knowledge of gas combustion. State in confidence, your age; sales experience; length of employment with former employers; products sold; chief territory covered, and upon what basis of remuneration. Our product is well known and advertised. Have desirable openings for result-getters upon drawing account against commission basis. **0266.**

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